COAL AGE

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Shall the Coal Industry Be Bond or Free?

By R. Dawson Hall

THERE are basic commodities on which the public depends for its existence, and the people are apt to be grossly unfair when the supply of these fundamentals is hindered or partly cut off. The pampered industries that cater to our love of luxury and ease can fail us and "soak us" with unreasonable charges, but those industries the service of which is material to our existence we would have as our bond servants who must work regularly for us, for low wages and without honor.

It was early discovered that coal was a public utility of this character. The Scottish Parliament in the early part of the seventeenth century recognized the need for plenty of fuel and at a low figure. In those days it was not customary to bait capital; labor was the favorite prey of legislation. So when the Scots wanted cheap and abundant coal they passed a law taking away the liberties of those who worked in the mines. In 1606 they made an enactment declaring it to be a felony for a mine worker to leave the employ of a coal operator —"master," they termed him — without obtaining permission of either the operator or the district magistrate. In other words, a man was adjudged by the law to be a thief if he took possession of his own labor. Labor in those days was surely enough a commodity — future labor as well as past labor — and it was the property not of the man that produced it, but of the master who controlled it. If any man was hired away by another, that employer was subject to a fine of 100 pounds sterling.

But this was not enough. The operators of coal mines were given the right "to apprehend all vagabonds and beggars" and to compel them to mine coal. This, in the days when mines had neither efficient drainage nor adequate ventilation! Though filled with firedamp, the "safety lamp" was unknown. Mining was extremely hazardous, so the mines were filled, like the navy, with impressed men. But why be squeamish? The public must have coal even if the freedom of the individual be interfered with. So special laws were passed to fill the mines with workers and to keep them enslaved when they got there.

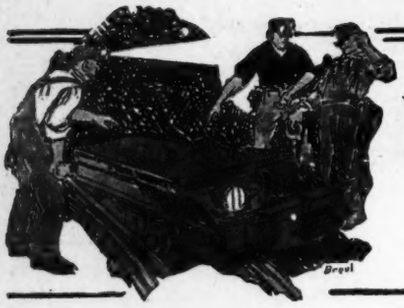
The habit of interfering with personal liberty is one that grows. When men are abused, then they endeavor to escape service and the industry by which they are employed loses its natural accretion. No men of character seek such an occupation, and the men engaged soon become rowdy, lazy and ignorant. It must have proved so, for in 1641 the Covenanting Parliament, which talked so loudly of freedom and violated that freedom so flagrantly, made it a law that miners should work six days a week the year long. There were to be no Christmas or Easter holidays. An idle day meant a fine of twenty shillings, about five dollars, and a sound whipping into the bargain. But it seemed to the legislators as if this had to be, for the public must have coal. If it fails to come to the mill, the mart or the domestic grate, someone must suffer. It was so then, and the laboring man was the victim; it is so today, and the operator is the berated party.

Beaten, fined and prohibited from selecting "masters," the serfs of the industry apparently did not tend to increase in numbers. Kindness had not been tried. Cruelty being the only known expedient, it seemed necessary to be more cruel. So thirty years later the Scottish Parliament again empowered the coal operators to go into the highways and hedges to collect the vagabonds and impress them for mine service with "all manner of severity and corrections," including whipping but not torture. These disciplinary measures covered not impressment merely, but the daily work of the men impressed. It is almost needless to say that men so necessary to supply a public utility were not allowed the benefit of the habeas corpus act.

Then came the union of the Parliaments, and the British Parliament passed an act declaring the miners were slaves. But at last a change came, and in 1775 those who were newly beginning work at Scottish mines were promised freedom and those already at work were given, after seven or ten years, a means of securing their full rights as citizens on application to the sheriff. If they struck, however, they were to be under bonds for two years additional. Finally a Tory government led by the younger Pitt put an end to the whole obnoxious business, and there has rarely been a coal shortage since.

Perhaps some day there will come a bright light that will show our legislators, whether they be Covenanting or Tory, that the industries which serve most should be as free or freer than those which serve least; that oppression of the useful industries decreases the number employed in them and so increases unduly the numbers of those who are engaged in callings that are dependent on their services; that free industries are like free men, the crowning glory of a great state.

If the land cannot be half slave and half free, surely we cannot enslave the useful industries and free those that merely waste the wealth that other industries so laboriously create.



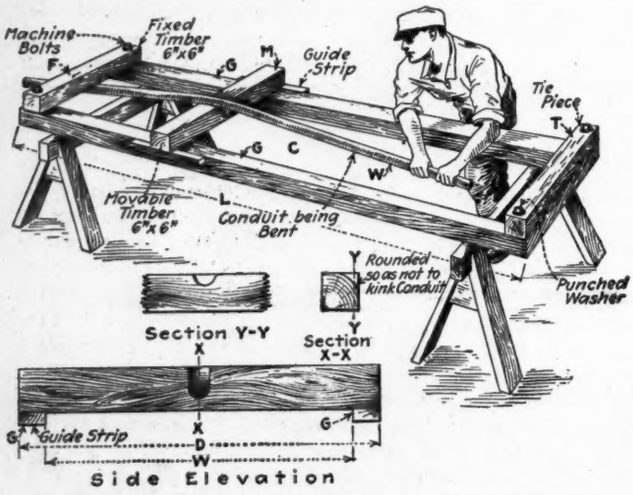
IDEAS AND SUGGESTIONS

PRACTICAL SCHEMES THAT MAKE THE DAY'S WORK EASIER

Construction and Manipulation of a Rack for Bending Large Pipe*

BY A. D. ADAIR
St. Louis, Mo.

A pipe or conduit bender of the rack type is convenient and economical for bending tubes of the large sizes. The pipe is inserted in one end of the rack or vise and there held rigidly while force is applied to the other end to bend the tube into the required form.



DETAILS OF A RACK TO BE USED FOR BENDING LARGE SIZES OF PIPE

The rack shown in the arrangement illustrated has proved to be a highly useful tool. The method of construction is shown in detail.

The essential members of this device are two longitudinal timbers, *G* and *G* (see the diagram), which should, for heavy work, be at least 6 in. square. Across the longitudinal pieces are bolted two fixed pieces, *F* and *T*, each about 6 in. square and 2 ft. long. A movable timber *M* (see construction detail), with a groove cut in it for the reception of the conduit, is arranged to slide longitudinally on the rack. When in use, the rack is elevated on a box, frame or saw-horse, as suggested in the upper part of the illustration. In bending the tube, one end is placed under the timber *F*. Then *M* is shifted to the most desirable position. Next the mechanic throws his weight on the other end of the tube *W*, which will produce a bend in it.

A bend cannot, ordinarily, be made with one setting of *M*. It is, on the contrary, necessary to form the curve by degrees. That is, with one setting of *M* the tube is partially bent; then *M* is shifted backward or forward as may be required and the tube bent further. This process is continued until the desired contour has been obtained. The movable timber *M* should have the slot which is cut in it for the conduit rounded as detailed in the diagram, because, if this procedure is not followed, there is a possibility of introducing kinks or wrinkles into the conduit.

For the best work, the width and the radius of the slot should be such that the conduit fits into it nicely. Hence, it follows that it is desirable to have a separate movable timber with a groove of different proportions for each size of duct. Or, instead, a number of different grooves of different sizes may be cut in the same movable timber to accommodate tubes of different diameters. However, a skilled workman can operate successfully on conduits of a number of different diameters by using a groove of but one size. The groove should also be rounded as shown in the illustration and should never, except for the roughest sort of work, be cut square.

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Drafting-Room Hints

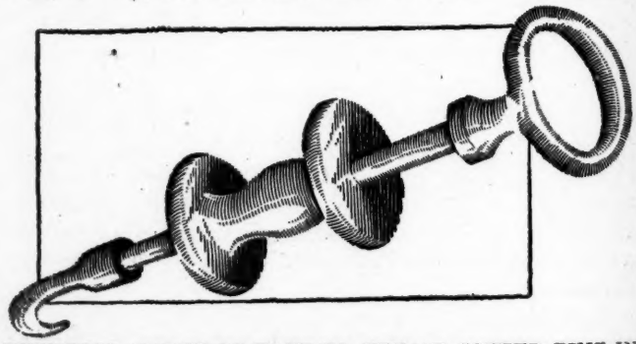
BY S. G. HAVERSTICK
Frostburg, Md.

The following are hints for use in the drafting room. They are not original, but have been given me by various parties and I have found them useful: A weak solution of picric acid makes one of the best mediums for coloring prints yellow. This is especially good where a large surface is to be treated, as it goes on smooth and is indelible. In coloring tracings it should be applied lightly, as it is nearly as opaque as black ink, the yellow being nearly non-actinic. Peroxide of hydrogen applied to burnt or over-exposed blueprints will help to clear the whites and bring out good clear blues.

Cotter Key Extractor

BY CHARLES H. WILLEY
Concord, N. H.

The accompanying illustration shows an assembled view of a tool that does away with the old method of using file tang to pry out, or pliers to twist out, cotter pins in places that are hard to reach. The hooked

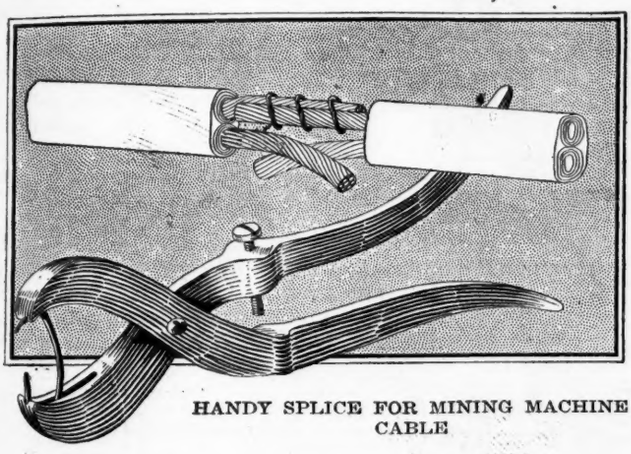


THIS TOOL MAKES IT EASY TO GET AT COTTER PINS IN INACCESSIBLE PLACES

end of this tool is simply entered in the eye of the cotter. While pulling on the handle with one hand, with the other the sliding hammer is worked vigorously back and forth, striking each time on the shoulder of the handle. These impacts pull the cotter. The hooks are made of tool steel in several sizes to meet the range of sizes of cotters used. The sliding hammer is made an easy fit and of such shape outside that the hand fits into it so that there is no danger of the flesh being pinched when the hammer strikes the shoulder. The illustration conveys the other details with sufficient clearness to render further description unnecessary.

Splicing a Cable with Hog Rings

A handy splice for a direct-current mining machine cable is made as follows: Peel the insulation back about 3 in. and lap the positive wires for the distance that they have to be peeled. Then, with a pair of 10-cent hog ringers and a few hog rings, the splice can be made secure, as the rings clamp around the cable when they



HANDY SPLICE FOR MINING MACHINE CABLE

are bent with the ringers. The positive wires should then be well taped. The negative may then be treated in the same manner. This makes a splice as strong as when the cables are twisted together and requires much less time. When a splice of this kind has been made, the cable is not much larger at the place of splice than elsewhere. This splice has the advantage also of saving cable, as less length is required for joining the ends. Another advantage is the less amount of time required to do the work.

Automatic Car-Door Opener Saves Lots of Time in Dumping Cars

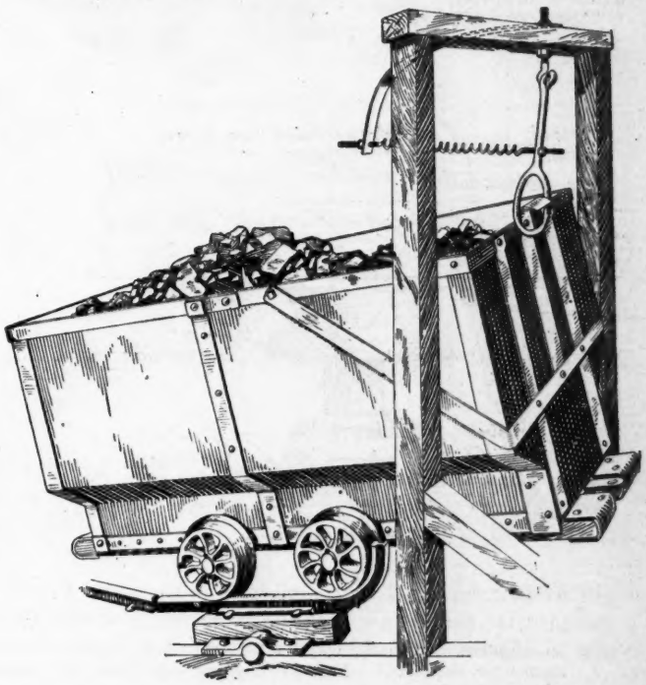
By Ralph W. Mayer
California, Penn.

A kickback dump is used at many mines for emptying cars filled with slate or rock. One mining company using the type of cars in which the end doors have to be raised in order to empty the car, has adopted a novel method to accomplish this result. A ring automatically engages the hook on the car door, raises the door, and automatically releases the hook after the car has been dumped

A substantial frame is erected over the horns at the end of the dump. This consists of two uprights and a crosspiece overhead. An eye-bolt is put through this timber over the middle of the track. The ring for engaging the car-door hook is fastened to a straight piece of 2 x ½-in. iron bar. This bar has a loop, or eye, on its end, which hinges into the eye-bolt fastened to the overhead timber. This allows it to swing freely in all directions. A piece of 2 x ½-in. iron is fastened to the top of the timber and extends back over the car dump about 2 ft., where it is bent at right angles downward toward the track. It should reach down about 18 in. The cross timber to which it is fastened must be placed high enough so that there will be plenty of clearance between this iron and the car when it is in dumping position.

A spiral spring is fastened between the end of this iron and the rod suspended from the timber to which the ring is attached. Both ends of the spring are secured to bolts by means of which the tension on the spring can be regulated. One end of the spring is fastened to the bent iron extending back over the car, and the other end to the rod supporting the ring. Several holes are drilled through both the iron and the rod, so that the bolts on the end of the spring may be passed through any one of them and the position of the spring regulated up or down so as to secure the setting most advantageous to the average run of cars to be handled.

When the car to be emptied is against the horns of the dump ready to be tilted, the ring should press



HOW THE CAR DOOR OPENER IS OPERATED

against the car door tightly and surround the lifting hook. The spiral spring holds the ring pressed against the door with its lower side three or four inches below the hook. As the car is dumped the hook catches on the ring, lifting the door of the car.

After the contents of the car have been discharged and the car returned to a level position, the lower side of the ring is again below the door hook, and the car is thus free to move away from the dump. This door opener is easily installed, at a small expense. When once in place no attention need be paid to opening or closing the car doors, thus saving much of the time spent in dumping cars.

Modern Mine-Wiring Practice*

By Terrell Croft
University City, St. Louis, Mo.

SYNOPSIS — *The methods and appliances employed in transmitting electric energy about the mine have now been well developed. This article enumerates some of the practices that have proved themselves most efficient.*

LOW and medium pressure wiring in mines should be supported on approved porcelain or glass insulators with metal or wood pins as supports. The spacing between insulators should never exceed 20 ft. where the roof is low or 35 ft. where it is high. Only one conductor should be attached to each insulator. The tie wire should be of the same material and carry the same insulation as the conductor. If porcelain insulators are used, only those made by the wet process should be permitted. Dry-process porcelain is subject to deterioration under the effect of acid-laden water and vapors.

Splices in mine wires should be made carefully because of the moisture, frequently acid-laden, which exists. Joints between dissimilar metals should be soldered because of the excessive electrolytic corrosion which will occur if they are not. Furthermore, all such splices should be taped carefully in order to, in so far as possible, exclude moisture. Trolley wires are joined with a mechanical splicer (Fig. 1) which can be filled with solder if desirable. Ordinarily they are not soldered in practice.

In installing trolley wire the hangers should be plumb and accurately located in relation to the mine track. On curves, hangers must be close together to prevent distortion of the clamps. A spacing of from 6 to 10 ft. between centers is usually satisfactory. The boss of the clamp should bear firmly against the hanger to minimize the tendency toward bending. Where the roadway is timbered, hangers suitably designed (Figs. 2 and 3) for direct attachment to the timbers may be used. In some mines, timber hangers of the type shown in Fig. 3 are supported directly from the roof with two lag screws driven into plugs or expansion bolts. If attached directly to the roof, a hanger with an expansion bolt stem (Fig. 2) may be employed. If they are not installed plumb, a "bump" (Fig. 4) in the trolley wire will result. Where the roof is high a side-suspension arrangement (Fig. 5) may be employed. Special clamps (Fig. 6), designed for the attachment to the steel timbers now frequently used in main entries, are now manufactured.

Mine trolley clamps (Fig. 7) have in recent years received considerable attention from the manufacturers and satisfactory designs are now obtainable from a number of concerns. The clamp should be relatively short. If there are any decided irregularities in the

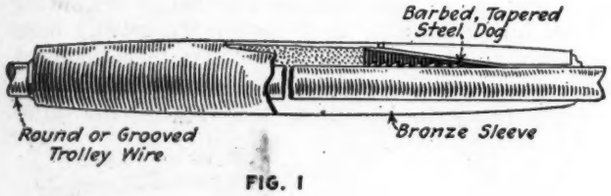


FIG. 1

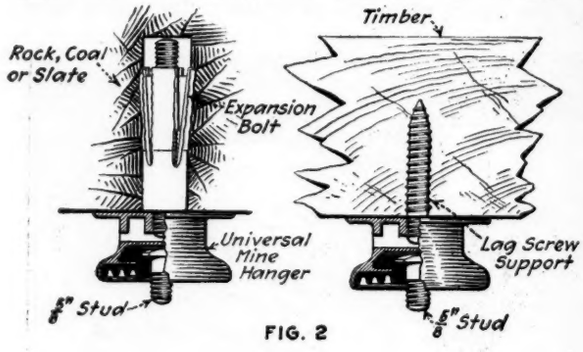


FIG. 2

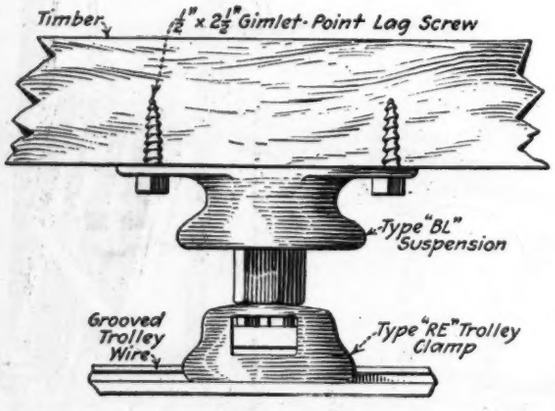


FIG. 3

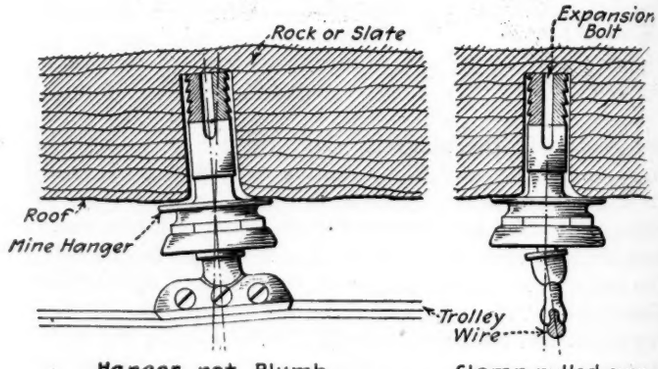


FIG. 4

FIGS. 1 TO 4. A SPLICER AND SOME HANGER DETAILS

Fig. 1—Typical construction of trolley and feeder wire splicers. Fig. 2—Showing how the same hanger may be used on either timber or rock roof. Fig. 3—Westinghouse type BL timber hanger. Fig. 4—Difficulties due to improper installation

*For detailed information relating to mine wiring the following references are recommended: "Standardization of Electrical Practice in Mines," Circular No. 23, Bureau of Standards, Government Printing Office, Washington, D. C.; "Suggested Safety Rules for Installing and Using Electrical Equipment in Bituminous Coal Mines," Technical Paper No. 138, Bureau of Mines, Government Printing Office, price 5c; Article, "Rules for Electric Wiring in Mines," *Coal Age*, May 25, 1918, page 968.

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trolley-wire contour (Fig. 4), excessive arcing will result. The jaws of the clamp which grip the trolley wire should be sufficiently narrow that they will not interfere with the passage of the trolley wheel. The device should be of such a design that it can be clamped rigidly after its proper alignment and location have been determined.

Section insulators in trolley wires are used where the insulation of a portion of the overhead conductor is desirable. It is considered good practice where the roof is bad to sectionalize each branch or room heading. Section insulators are of three kinds: non-switching, hand-operated and automatic. Those of the non-switching type merely interpose an insulating block in the trolley wire. The two sections of wire thus insulated from one another may be electrically connected by closing a switch, from which "jumpers" run to the two trolley wire sections.

A hand-operated section insulator (Fig. 8) is merely a non-switching section insulator to which a knife switch mounted on one of its sides has been added. The trip

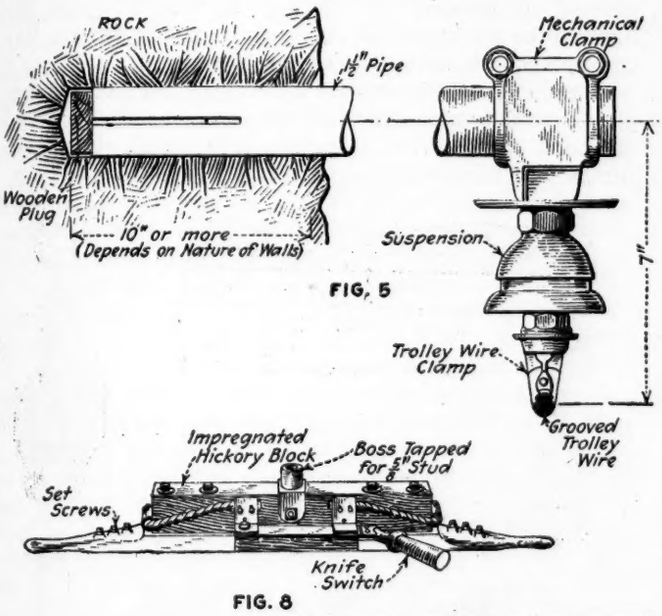


FIG. 5 FIG. 8

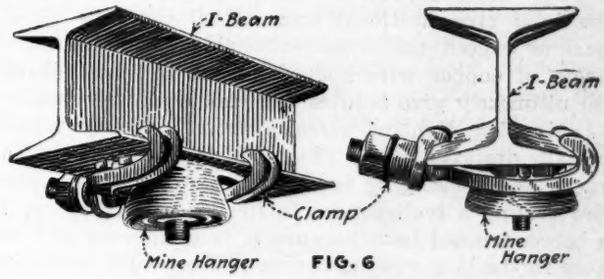


FIG. 6

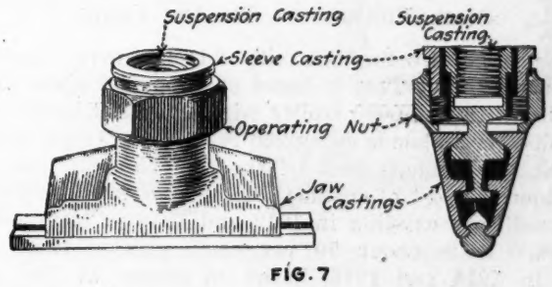


FIG. 7

FIGS. 5 TO 8. TROLLEY WIRE SUPPORTS AND TROLLEY CLAMPS

Fig. 5—Trolley wire supported from side wall by pipe arm (General Electric Co.). The combination pipe clamp and flat-top suspension provide a good arrangement for sustaining the trolley wire around curves where the top is quite irregular. Fig. 6—Mine hanger supported on I-beam (Ohio Brass Co.). Fig. 7—Typical trolley clamp ("New Modoc," Form 1, Ohio Brass Co.). Fig. 8—Section insulator with switch

driver in passing under the section insulator may close the switch when his trip runs into the section and open it as the trip passes out.

Automatic section insulators are so designed that the trolley wheel in passing over them will cut in the section of trolley wire ahead of the locomotive and on the return cut it out. The automatic section insulators are more expensive, heavier and more complicated than the hand-operated insulators.

Trolley wire for mine service is now, in practically every case, grooved No. 0000 hard-drawn copper (Fig. 9). The round trolley wire (Fig. 10) is at present seldom used because the hangers employed with it must have their lips formed under it for its support. This may introduce a bump—that is, it does not provide a smooth "under-run." The figure 8 wire (Fig. 10) provides a smooth under-run and good mechanical attachment to the hangers, but it is difficult to handle in that it tends to kink. The grooved wire has neither of the foregoing disadvantages and affords both a good mechanical support and a smooth under-run. No. 00 wire has been used and No. 0 occasionally for small entries and into rooms where the service is light. Usually it is uneconomical to install wire smaller than No. 0000 even if the load which it carries is small, because of the tendency of the smaller conductors to break and to deteriorate rapidly from wear.

The properties of grooved trolley wires are, electrically, practically the same as those of hard-drawn round copper wire of equivalent cross-sectional area. The dimensions shown in Fig. 9 are standard and were adopted several years ago. They also include the dimensions that were added at the Chicago convention of the American Electric Railway Association in October, 1912. The manufacturers of trolley-line equipment design it on the basis of the foregoing dimensions. The American Society for Testing Materials recommends that sizes be specified in circular mils and not as gage numbers. The circular-mils areas shown in parentheses in Fig. 9 differ from the corresponding numbers by less than five parts in a thousand.

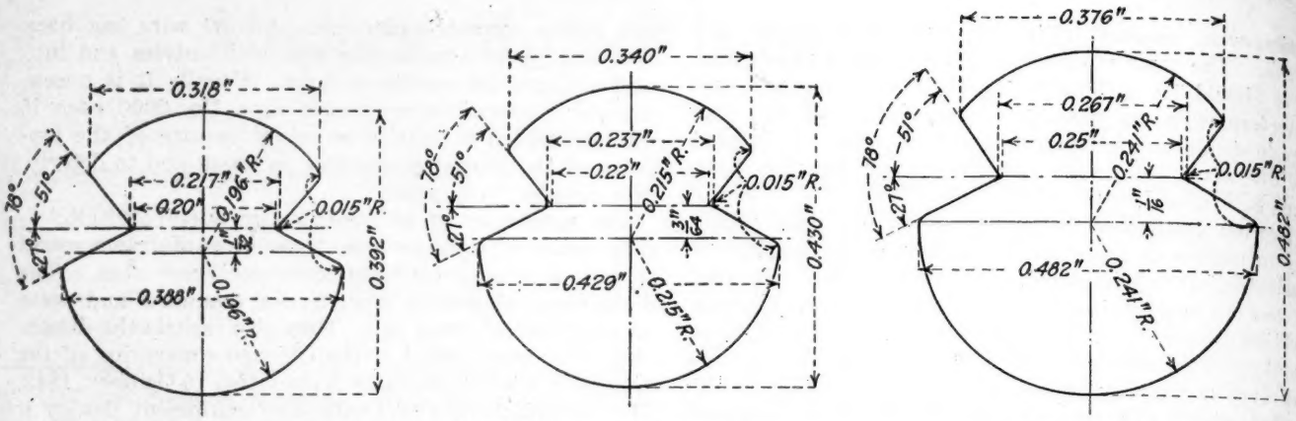
The location of the trolley wire with relation to the track will be determined by local conditions. Ordinarily the center of each hanger may be 7 in. outside of the outer edge of the rail.

When dead-ending a trolley wire[1] (Fig. 11) it should be anchored securely and insulated. This may be accomplished either by using a strand insulator, an ordinary turn-buckle or a Brooklyn strain insulator, which is really a combination of the two devices just mentioned. A suitable galvanized clamp should be used for holding the dead-end loop at the end of the trolley wire.

A trolley wire should be protected to prevent men or animals from contacting therewith. The protection may comprise boards or strips extending down each side of the trolley wire with a space between sufficient to admit the trolley wheel.

A trolley frog should be located 2½ ft. in advance of the point of the latch and be restrained in a horizontal

[1]Practice recommended by the Ohio Brass Company.



I—2-0 wire (133,200 circ. mil) II—3-0 wire (168,000 circ. mil) III—4-0 wire (211,600 circ. mil)

FIG. 9. AMERICAN-STANDARD GROOVED COPPER TROLLEY WIRE (ALL DIMENSIONS ARE IN INCHES)

position by suitably located hangers on the trolley wires near the frog.

In tapping a feeder into a trolley wire (Fig. 12) a properly designed feeder clamp should be employed. The total cross-sectional area of all the taps should equal or exceed the cross-sectional area of the cable. Pieces of copper wire hooked around ordinary clamps will ultimately give trouble and should not be used.

In tapping lighting circuits from a trolley wire a specially-designed clamp (Fig. 13) should be used. The practice of hooking or twisting a piece of bare copper wire around a trolley wire in lieu of a current tap is to be condemned both because it is dangerous and because in the long run expensive, if the trouble and time it may cost are considered.

Some Figures on Trolley Costs

The cost of erecting one mile of trolley wire complete is about $1500. This is based on copper at about 25c. per lb., with No. 0000 trolley wire, No. 0000 bonds and No. 0000 cross-bonds every 250 ft. Of the $1500, $1100 is the approximate cost of the material and the remainder the cost of installation. These data are based on conditions existing in 1917 and 1918 in bituminous mines. It is about 50 per cent. greater than the cost in 1914 and 1915, based on copper at 15c. per pound. The conditions in anthracite mines are usually more difficult and the total cost will average from 25 to 50 per cent. greater than for bituminous mines. The cost increases appreciably for curved untimbered haulageways with many turnouts.

The resistance of rail joints, unless they are bonded, may be exceedingly high and where bolts are loose and corrosion excessive may be equivalent to an open circuit. For this reason bonding is imperative as an economic proposition[2]. The steel rails used are practically always of sufficient area to conduct the current economically.

Two methods of bonding are in common use—channel-pin and compressed-terminal bonding. As will be explained, the channel pin, although least in first cost, is likely to be too expensive in ultimate cost to justify its employment on main haulageways.

In the channel-pin method of bonding a grooved steel plug, into the groove of which has been inserted a piece of round copper wire, is driven into a hole drilled in the rail. The wire fits snugly into the groove and the

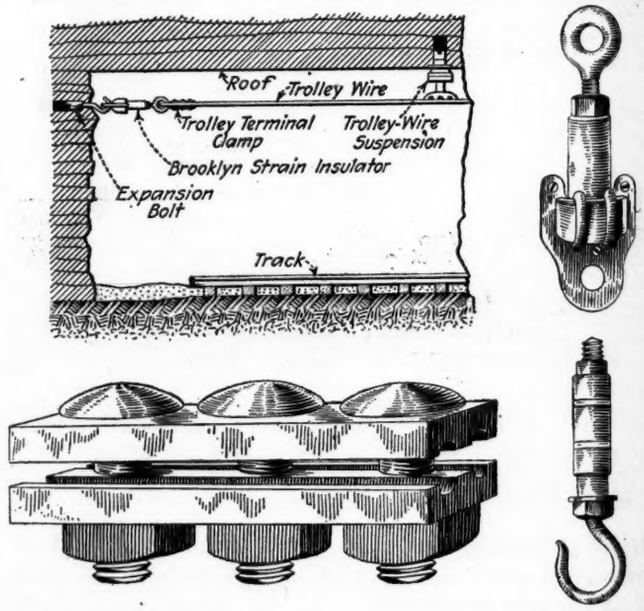


FIG. 11. METHOD OF DEAD-ENDING A TROLLEY WIRE

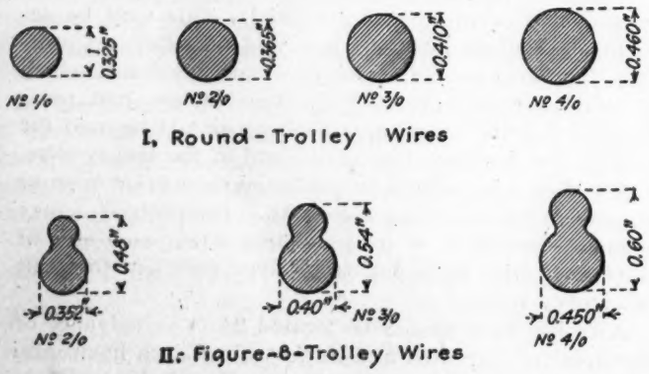


FIG. 10. SECTIONS OF ROUND AND FIGURE 8 TROLLEY WIRES

driving in of the plug wedges it in position. While the resistance of such a plug when new is low, moisture will ultimately enter the joint and produce corrosion and a consequent high resistance. For these reasons channel-pin bonding is desirable only for temporary tracks in rooms and chambers. Old trolley wire is frequently used for the bonding wire.

In installing the compressed-terminal bond, a screw compressor is employed which forcibly expands the bond

[2]The fish plate alone (according to the Ohio Brass Company) is not sufficient to carry the return current and should never be depended upon to do so. While it is true that new fish plates on a new rail will materially increase the conductivity of the rail return circuit they should never be considered as being adequate substitutes for bonds. In a short time the fish plate where it contacts with the rail becomes corroded and offers a high resistance. To insure long life and proper condition of bonds, the fish-plate bolts must be tight so as to minimize vibration at the joints.

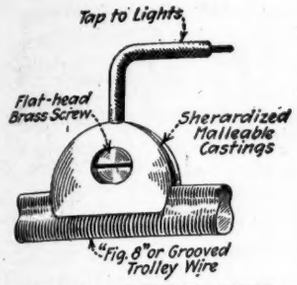
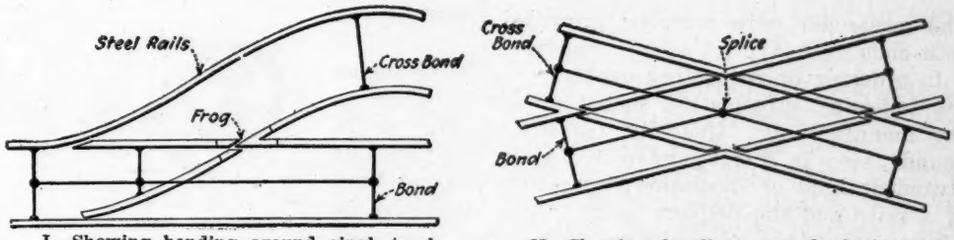


FIG. 13. CURRENT TAP



I—Showing bonding around single-track turnout

II—Showing bonding around single-track crossing

FIG. 14. METHODS OF BONDING AROUND TURNOUTS AND CROSSINGS

terminal in a hole in the rail. At the same time it forms a button head which reduces the possibility of the entrance of moisture around the terminal to a minimum.

The sectional area desirable for a bond is difficult or impossible of definite determination. One rule frequently followed is that the total cross-section area of the bonds should equal the total area of the overhead circuit. That is, the cross-sections of the bonds on a haulageway should equal the total cross-section of the copper wire and the feeder cable. Other users have adopted the empirical rule that the area of the bonds should be one-half of that of the overhead copper. However, in no case should the safe carrying capacity of the bond be exceeded. One rule in this connection is that the bond area should be not less than 500 circ. mil per ampere of average load.

In drilling holes for bonds no oil should be used. Furthermore, the holes should always be drilled and reamed just prior to the installation of the bonds so as to insure good electrical contact.

As to whether the bond should be installed under or over the fish plate, local conditions must determine. Where an old installation is being bonded the expense of removing the rusted fish plates and bolts is excessive and usually renders the placing of the bonds under the plate out of the question. In new installations where a 60-lb. per yd. or heavier rail is used, it is desirable to place the bonds under the plates for mechanical protection and for the prevention of theft. Where the bond is placed under the plate a shorter length can frequently be used. The space between the fish plate and the rail is not ordinarily great enough to accommodate a concealed bond where the rail weighs less than 60 lb. per yard.

Cross-bonding (Fig. 14) is necessary so that should a bond on either rail break the current can find a return path to the supply station through a cross bond to the other rail. There is no method of computing the spacing of cross-bonds. However, the practice is to space them about every 200 or 250 ft. The area of the cross-bonds should be equal to the area of the rail bonds. Cross and longitudinal bonds should be arranged around the turnouts and crossings as diagramed in Fig. 14.

Bonding to auxiliary return paths such as water and air pipe lines is desirable for two reasons. It reduces the electrical resistance of the return path and it minimizes the possibility of electrolysis or electrolytic corrosion. Such auxiliary bonds can be installed at intervals of 300 ft. where the pipe line parallels the track[3]. The joints should be well soldered and served with tape to prevent corrosion.

Borehole cables are conductors carried down a hole bored from the surface to the underground workings. Boreholes are used because they may provide a direct route and, furthermore, because the cable installed in them has almost complete mechanical protection. Ordinarily boreholes, which may be about 5 in. in diameter, should be lined with a steel casing cemented in at the top and extending above the ground level 4 or 5 ft. to prevent the entrance of surface water. It is desirable that a lightning arrester and disconnecting switches be connected in the circuit at the location where the cable enters the borehole.

Where the voltage does not exceed 600, ordinary rubber-insulated copper conductors can be used in the borehole just as they are in iron conduit. Each conductor should be supported at the top by a suitable strain insulator. Where the voltage is 2200 or above, it is considered necessary to use lead-cased cables. The weight of the cable then becomes excessive so that it is necessary to use the steel armor wire to support the conductor.

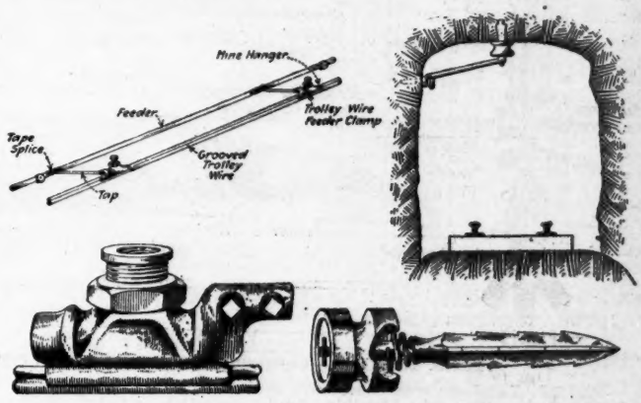


FIG. 12. TAPPING A FEEDER INTO A TROLLEY WIRE

Ordinarily three-conductor cables are employed for three-phase service and may be provided with varnished cambric insulation. They should be lead-cased steel-wire armored and jute-and-asphalt finished. The weight of the cable is sustained by the armor wires, which are clamped in a suitable support (Fig. 15) which may rest at the top of the borehole casing. Potheads or end bells of the disconnecting type should be placed at each end of the cable.

In supporting cables in mine shafts, the best practice dictates that the steel armor wires be used to sustain the weight the same as with borehole cables. Sometimes unarmored cables are supported in wooden cleats at regular intervals, but this method is not wholly satisfactory. The steel wire armor of a cable not only permits it to be supported effectively, but also provides adequate mechanical protection. Stranded steel messenger cables, extending down the shaft, to which the steel armored lead-covered cables are lashed with steel wire at intervals of 20 to 40 ft., have been used successfully.

[3]Old steel hoisting ropes have been employed by certain mining companies to reinforce a return circuit. The rope is supported on the props along the entries and cross-bonded at 200 to 300-ft. intervals to the rails. All joints should be carefully soldered.

The messenger wire must be grounded effectively at both ends.

In ordering or requesting quotations on mine cables the following information should always be given to the manufacturer: Quantity required in feet or in pounds; sizes in B & S gage or in circular mils; solid or stranded; kind of insulation; operating voltage; kind of service and the delivery point. Also, determine in advance where the joints can be made to best advantage and order the lengths of cable accordingly. If uncertain as to the proper kind of cable to specify, put your problem up to a responsible manufacturer. Give him complete information—he cannot have too much.

Mining machine cables are made in three forms: Flat duplex, round duplex and concentric duplex. Flat duplex cable is the least expensive but has the disadvantage that it is liable to kink when being handled. Round duplex does not tend to kink but it has a somewhat larger over-all diameter and is more expensive than the flat duplex. The concentric duplex is more solid and compact than either of the other forms and resists wear better. It is more expensive and a little more difficult to splice than either of the others.

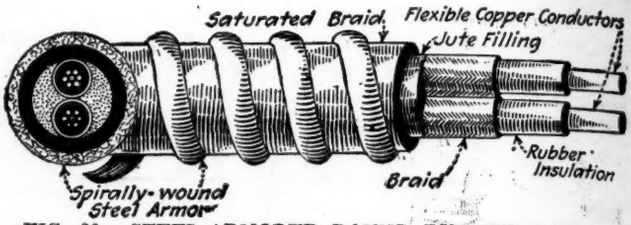


FIG. 20. STEEL-ARMORED ROUND DUPLEX MINING-MACHINE CABLE

Mining-machine cable construction varies in detail with the different manufacturers. That described below (Standard Underground Cable Co.) is typical. Flat duplex cable consists of two flexible conductors (Fig. 16) each insulated with rubber and braid with two or three braids thereover. Round duplex has individual conductors which are rubber insulated and with the braid served over them as for flat duplex. But instead of being laid up parallel the conductors are cabled together, the interstices being filled with jute fiber, thus forming a round core over which is placed a tape and one or more braids. Concentric duplex is made up in two constructions. Construction *A* (Fig. 17) has a flexible inner conductor, rubber-insulated and braided, over which is applied the second conductor of equal cross-section laid up in the form of a spirally wound layer of copper wires, over which is applied a belt or rubber insulation, the finish over all being a tape and one or more braids. Concentric duplex construction *B* (Fig. 18) differs from construction *A* only in that the outer layer of rubber is omitted, the tape and weatherproof braids being applied directly over the outer conductor.

The number and quality of protecting tapes and braids with which mining-machine cables of the various types are finished varies with the practice of the different manufacturers and the individual wishes or requirements of the purchaser. Cotton yarn, rather than jute, has in the past been used in the outer or finishing braids of practically all types and styles of mining-machine cables. The reason is that cotton is more serviceable and absorbs the insulating compound more thoroughly. Recently certain of the leading manufacturers have adopted a finishing braid of seine twine saturated with a weatherproof compound. This gives a very durable protection. It is considerably more expensive than ordinary cotton braid but is more economical.

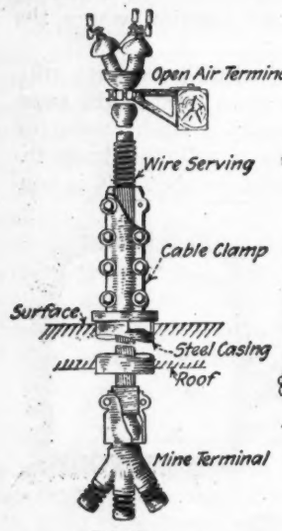


FIG. 15

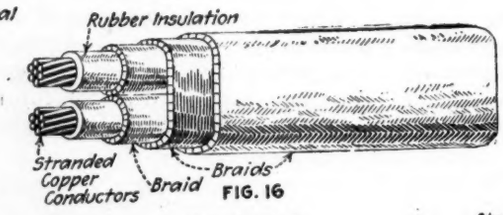


FIG. 16

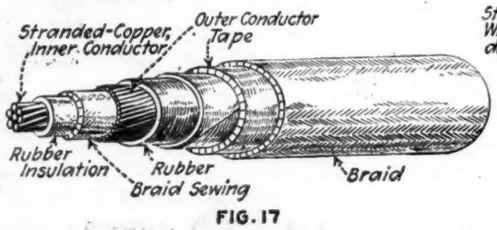


FIG. 17

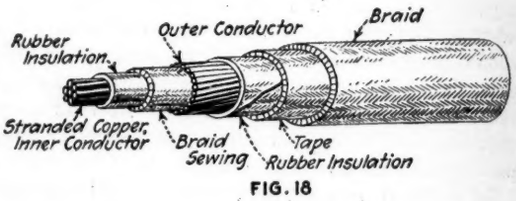


FIG. 18

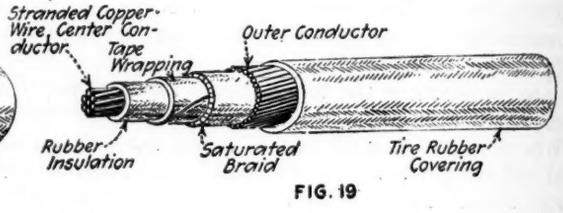


FIG. 19

FIGS. 15 TO 19. CONSTRUCTION DETAILS OF A NUMBER OF DIFFERENT KINDS OF CABLE

Fig. 15—Lead-covered steel-wire-armored cable installed in a borehole with terminal clamp and terminals (Standard Underground Cable Co.). Fig. 16—Flexible, duplex-parallel, braided, rubber-covered mining-machine cable, weatherproof finish. Fig. 17—Flexible, duplex-concentric, braided, rubber-covered, mining-machine cable, weatherproof finish, construction "A." Fig. 18—Flexible, duplex-concentric, braided, rubber-covered, mining-machine cable, weatherproof finish, construction "B." Fig. 19—Goodrich "standard" duplex-concentric, special-rubber-covered mining-machine cable.

Rubber-covered mining-machine cable (Fig 19) is now made by the Goodrich company. It is claimed that this protection is not subjected to moisture troubles because, until it is mechanically injured, the cover is impervious to moisture. It resists wear in the same manner as does a rubber tire tread. It is lighter and more flexible than cables having braid protective coatings. The construction data are as follows: Conductors of soft drawn tinned copper. Inner conductor is composed of 133 wires

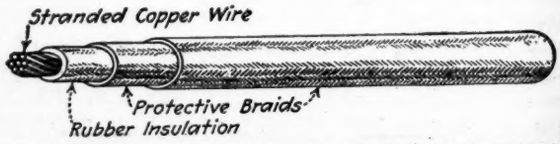


FIG. 21. SINGLE-CONDUCTOR, LOCOMOTIVE-GATHERING REEL CABLE, BRAIDED

insulated with the National Electrical Code thickness and quality of rubber insulation, then taped and covered with one weatherproof braid. Over this is placed the second conductor composed of 49 wires, and the whole is finally covered with abrasion resisting rubber—serving both as outer insulation and protective covering.

Armored mining-machine cable (Standard Underground Cable Co.), Fig. 20, can be furnished with any number of conductors but is usually duplex, being either: (1) Flexible conductors, rubber-insulated and braided, twisted together and protected either with one or more saturated braids or a spirally wound steel armor, or (2) concentric duplex same as construction *A* except with the additional protection of a spirally wound steel armor. The soft-steel galvanized armor furnishes protection against abrasion. Cable of this type is used extensively in the Pennsylvania and West Virginia fields. In other fields it has not been generally adopted because it is difficult if not impossible to wrap cable of this type on drums. It is used in short sections and dragged from one room to another.

Gathering locomotive cable (Fig. 21) comprises one flexible conductor which is insulated with National Electrical Code thickness and quality of rubber and then protected by one or more tough braids.

In constructing transmission lines wooden poles are used in all except the most important installations. It is good practice to use wooden cross-arms for the lower voltages, but where the line is three-phase high voltage, steel cross-arms of a type which will provide equal distances between the three conductors are preferable. All metal pole fittings should be galvanized. Poles should satisfy all standard specifications. Cedar is the best material, but chestnut is almost as good, from the standpoint of durability. Yellow pine rots rapidly. The butts of all wood poles should be treated with a preservative, as such treatment is more than justified. Poles should be set in the ground at least one-fifth to one-sixth of their length. The lowest wire should be from 18 to 22 ft. above the highways.

Production of Soft and Hard Coal in the United States in 1918

The final figures of coal production for 1918, compiled from reports from all operators in the country, have just been completed by the Geological Survey. These official figures show for the year 1918 a total output of 579,386,000 net tons of bituminous coal, a figure less by 1.1 per cent. than the estimate published eight months ago. The total production of coal, anthracite, bituminous and lignite, in 1918, was 678,212,000 net tons. Pennsylvania ranked first in output, with West Virginia second and Illinois a close third. The number of men employed in the production of bituminous coal in 1918 was 615,300, compared with 603,143 in 1917. The average number of days worked, the highest recorded, was 249, compared with 243 in 1917.

The total value of the production of the bituminous coal mined in 1918 was nearly $1,500,000,000, and of both bituminous and anthracite coal, $1,828,423,000. The average value per ton realized for bituminous coal was $2.58, compared with $2.56, the estimated weighted average of the established Government prices in effect throughout the year.

BITUMINOUS AND ANTHRACITE COAL PRODUCED IN THE UNITED STATES IN 1918

	Loaded at Mines for Shipment (Net Tons)	Sold to Local Trade and Used by Employees (Net Tons)	Used at Mines for Steam and Heat (Net Tons)	Made Into Coke at Mines (Net Tons)	Total Quantity (Net Tons)	Total Value	Average Value par Ton	Number of Employees	Average Number of Days Worked
Alabama	16,061,991	304,038	593,739	2,225,194	19,184,962	$54,752,329	2.85	26,221	278
Alaska	67,267	6,384	1,955	.....	75,606	411,850	5.45	239	254
Arkansas	2,111,992	41,457	73,920	.....	2,227,369	8,172,376	3.67	3,978	204
California and Idaho	5,800	600	.....	.....	6,400	17,250	2.70	15	240
Colorado	10,580,811	436,338	311,009	1,079,413	12,407,571	33,404,743	2.69	14,483	255
Georgia	21,725	888	6,250	37,853	66,716	239,377	3.59	190	258
Illinois	83,268,864	3,641,044	2,381,197	.....	89,291,105	206,860,291	2.32	85,965	238
Indiana	28,961,651	941,707	775,276	.....	30,678,634	70,384,601	2.29	30,376	227
Iowa	7,399,030	602,556	190,609	.....	8,192,195	24,703,237	3.02	13,328	245
Kansas	7,188,358	173,330	200,259	.....	7,561,947	22,028,142	2.91	10,665	234
Kentucky	29,350,941	1,049,985	678,090	593,601	31,612,617	80,666,842	2.55	39,342	230
Maryland	4,343,293	98,288	55,716	.....	4,497,297	12,466,189	2.77	5,568	261
Michigan	1,280,658	98,954	85,206	.....	1,464,818	5,615,097	3.83	2,558	237
Missouri	5,119,591	385,896	162,243	.....	5,667,730	17,126,498	3.02	9,590	235
Montana	4,177,894	179,079	175,532	.....	4,532,505	11,444,875	2.53	4,559	264
New Mexico	2,836,801	39,075	39,271	1,108,092	4,023,239	10,787,082	2.68	4,095	301
North Carolina	466	42	912	.....	1,420	6,745	4.75	50	40
North Dakota	526,046	173,744	19,943	.....	719,733	1,762,577	2.45	828	229
Ohio	42,888,610	2,015,720	908,613	.....	45,812,943	118,095,518	2.58	48,450	223
Oklahoma	4,567,930	37,600	207,917	.....	4,813,447	17,508,884	3.64	8,451	228
Oregon	4,112	3,946	5,270	.....	13,328	37,454	2.81	40	292
Pennsylvania (bituminous)	137,492,980	4,984,384	3,612,890	32,460,487	178,550,741	463,159,736	2.59	174,306	269
South Dakota	640	7,302	.....	.....	7,942	22,230	2.80	21	145
Tennessee	5,904,593	148,130	181,901	596,424	6,831,048	19,305,203	2.83	10,694	265
Texas	2,204,266	11,854	45,015	.....	2,261,135	5,937,997	2.63	3,936	262
Utah	4,238,718	64,827	94,978	738,302	5,136,825	13,937,097	2.71	4,160	258
Virginia	8,188,502	392,712	107,519	1,601,075	10,289,808	25,865,895	2.51	11,004	277
Washington	3,659,830	74,315	193,606	154,461	4,082,212	14,132,869	3.46	5,109	275
West Virginia	81,579,916	2,636,785	1,159,951	4,559,187	89,935,839	230,508,846	2.56	89,530	238
Wyoming	9,055,252	130,777	252,659	.....	9,438,688	22,581,019	2.39	7,554	268
Total bituminous	503,088,528	18,681,757	12,521,446	45,094,089	579,385,820	1,491,942,849	2.58	615,305	249
Pennsylvania (anthracite)	85,927,696	2,674,439	10,223,949	.....	98,826,084	336,480,347	3.40	147,121	293
Grand total	589,016,224	21,356,196	22,745,395	45,094,089	678,211,904	1,828,423,196	2.70	762,426	258

Mine Transportation After an Explosion

The transportation of material into a mine after an explosion is often made difficult by falls of roof, wrecked mine cars, or other obstructions, the cars and track being temporarily useless, so that the material must be carried or dragged by the workmen. Gangs of workmen should be assigned certain distances over which they must convey the material. In this manner the men become accustomed to the travel over their section, and, as the work advances, they may be moved farther into the mine and a new crew added on the outside to deliver material at the first station at the mine or shaft entrance.—*Rescue and Recovery Operations in Mines.*

Height of the Gas Cap in a Safety Lamp*

It is well known that the heat of the flame in a safety lamp exerts an influence upon the height of the gas cap secured in a mixture of gas and air. Mr. Young's paper describes experiments conducted to determine the extent of this influence.

BY C. M. YOUNG†
Urbana, Illinois

THE safety lamp is the most common and convenient apparatus for detecting inflammable gases in mines. The presence of gas in this lamp is shown by a blue flame, called the cap, if the wick has been lowered to suppress the luminous flame. The height of the cap increases with the proportion of gas and with the temperature of the lamp flame. Lamps of the Wolf type, burning benzine, have a hotter flame than those in which vegetable oils are used, such as the Davy and the Clanny, and are more sensitive than the latter and their many modifications. The Piehler alcohol lamp gives a still higher flame while the Clowes hydrogen lamp is more sensitive than all. While the effect of the temperature of the source of ignition is well known, I know of no previous attempt to correlate the change of this temperature with change of the height of the cap produced.

In order to determine the height of the cap at various temperatures, it was necessary to have a source of ignition the temperature of which could be accurately controlled over a considerable range. This condition was met by a coil of wire of high fusing point heated by an electric current controlled by a variable resistance. The use of a coil offered the further advantage of freedom from complications arising from the flame of a burning fuel. Such a flame, being itself of variable height, would to some extent raise or lower the elevation of the base of the cap and therefore add to the difficulty of determining the height of the cap. Besides this, the presence of a small cap from the lamp fuel, commonly known as the "fuel cap," would interfere with the observation of small gas caps.

After some experiment, a coil was made of platinum wire, No. 26, diameter 0.016 in. The coil was 17/64 in. in outside diameter and had eight full turns in a length of ½ in. This was connected to an electric circuit through an adjustable resistance, as shown in Fig. 1. In order to measure the temperature, a thermocouple was inserted in the center of the coil; the leads passed out at the ends and were conducted to a millivoltmeter. It is probable that the current of air passing upward through the coil resulted in the indication of a temperature somewhat below that of the coil, but the error was not of such nature as to change the general conclusion drawn from the observations.

Partly because of the fact just mentioned and partly because the impossibility of measuring the exact height of the cap rendered refinements in other parts of the work unnecessary, no cold junction was used in connection with the thermocouple. Moreover, there was no object in ascertaining the exact temperature at which a given percentage of the particular gas used would give a cap of certain height. The height of cap varies with the composition of the gas and the results obtained could not be checked with those obtained with another gas unless that gas were measured in accordance with its cap-forming power instead of its composition and percentage.

The object of the experiment was not to find the exact height of cap given with a certain percentage of gas at a given temperature of the coil, but to show that the height of the cap varies with the temperature of the source of ignition. Points such as the relation between the exact temperature of the source of ignition and the height of the cap in mixtures of pure methane and air, and the relation between the height of the cap and the size of the igniting body, are reserved for future investigation.

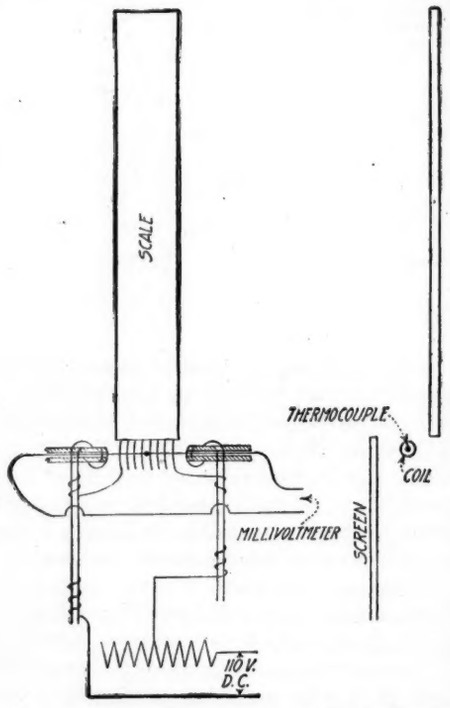


FIG. 1. COIL CONNECTED TO AN ELECTRIC CIRCUIT THROUGH AN ADJUSTABLE RESISTANCE

A scale was placed back of the coil and in front of it a screen to cut off the light from the coil; the base of the scale, the top of the coil, and the top of the screen were at the same elevation. The apparatus was blackened to prevent reflection of light from the coil as far as possible. For the proper proportioning of gas and air, an Oldham gas-testing machine was used. As methane was not available, gas from the city

*To be presented before the September meeting of the American Institute of Mining Engineers, Chicago, Ill.

†Assistant Professor of Mining Research, University of Illinois.

lines was employed. No attention was paid to the composition of the gas or to the percentage present, but the apparatus was arranged to give a mixture approximately equivalent in cap-forming power to certain percentages of methane.

The apparatus was calibrated with an unbonneted Clanny lamp and the mixtures used were approximately equivalent in cap-forming power to mixtures of methane and air containing 4, 3, 2 and 1 per cent. of methane. No higher percentage was used because of the approach to the explosive limit. The relations between the temperature of the igniting coil and the height of the cap produced with these mixtures are shown by graphs *A*, *B* and *C*, Fig. 2.

With a gas mixture equivalent to 4 per cent. methane, no cap was observed at 660 deg. C. (1220 deg. F.), but a cap about $\frac{3}{8}$ in. high appeared at 662 deg. C. (1223.6 deg. F.), thus roughly indicating this as the ignition temperature of the gas. The composition of the gas

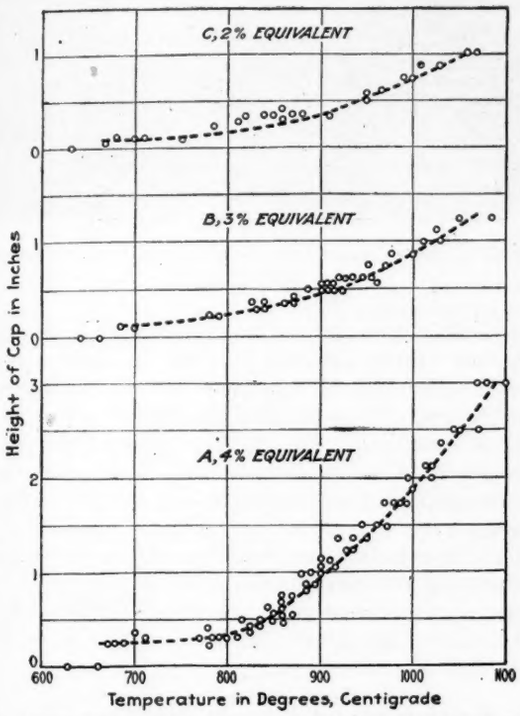


FIG. 2. RELATION BETWEEN TEMPERATURE OF IGNITING COIL AND HEIGHT OF CAP

is variable but the following analysis is fairly representative of its composition at the time when the tests were made: CO_2, 6.7 per cent.; O_2, 0.2 per cent.; illuminants, 12.1 per cent.; H_2, 20.8 per cent.; CO, 8.8 per cent.; CH_4, 18.4 per cent.; N_2, 33.0 per cent. The ignition temperature of such a mixture is uncertain, but that of methane is commonly given as about 650 deg. C. (1202 deg. F.) while that of hydrogen is somewhat lower. It may be judged from the appearance of the cap at 662 deg. C. that the temperature indication was not seriously in error.

The abrupt appearance of a cap $\frac{3}{8}$ in. high at 662 deg. C. was somewhat unexpected, as it might be supposed that the cap would increase gradually from 0. The measurement of the height of the cap was difficult because of the lack of a quite definite summit, but none of many observations with a 4 per cent. methane equivalent showed a cap less than $\frac{1}{4}$ in. high and this small cap appeared and disappeared abruptly with very small temperature changes.

Graph *A* is a composite of the readings of four sets of observations, graph *B* is a composite of two sets, and graph *C* represents only one set. In each case there is a nearly horizontal portion, while the temperature is lower than about 850 deg. C. (1562 deg. F.). At these lower temperatures, changes in temperature made little difference in the height of the cap. The explanation of this fact is not certain but it may be due to the burning of the constituents of the mixture having lower ignition points than methane. It seems quite possible that the heavy hydrocarbons that constitute 12.1 per cent. of the gas would be thus burned. Beginning at about 800 deg. C. (1472 deg. F.), increase of temperature produced a more marked effect on the height of the cap. This is especially noticeable in the case of the richest mixture.

When an attempt is made to draw curves through the points, it is found that there is some evidence of irregularity in the region between about 825 deg. and 925 deg. C. (1517 and 1697 deg. F.), where some points are found lying above the position of a smooth curve. This is shown most plainly in graph *C* but is found also in *B* and *A*. It occurs at a lower temperature in *C* than in *A* while in *B* it occurs at about the same temperature as in *A*. No explanation for this peculiarity is at present apparent.

With gas equivalent to 4 per cent. methane the cap was plain and while low could be measured with some accuracy. High caps ranging above about $1\frac{1}{2}$ in. were hard to measure because they fluctuated somewhat, and also because the top faded out without a definite limit.

With gas equivalent to 3 per cent. methane, the cap was less plain than with 4 per cent.; and with a 2 per cent. equivalent it was hard to see. Experiment with a mixture equivalent to 1 per cent. methane showed a faint cap, about $\frac{1}{8}$ in. high, when the coil was bright red. Raising the temperature did not apparently increase the height of the cap, but the cap was so faint that it was obscured by the light from the coil and no measurement was attempted.

The experiments show that there is a fairly definite relation between the temperature of the source of ignition and the height of the cap formed in a mixture of a combustible gas and air, the height of the cap increasing with the temperature. More rigid investigation might reveal a relation between these variables capable of mathematical expression, but the conditions of the experiment made do not warrant an attempt at such expression.

Combustion Over Fuel Bed

Combustion over the fuel bed is a chemical reaction between gaseous oxygen on the one hand and gaseous, liquid and solid combustible, which rises from the fuel bed, on the other hand. The gaseous and liquid combustible results from gasification of fixed carbon on the grate and distillation of volatile matter. The solid combustible consists chiefly of finely divided carbon, known as soot, which is produced by decompositions of volatile matter. Also particles of coal are carried along with the current of gases. To burn these gaseous, liquid and solid combustible materials oxygen must be supplied by admitting air over the fuel bed. The velocity and completeness of combustion are influenced by concentration, mixing, temperature and time of contact of oxygen and combustible, and therefore a knowledge of their effects is important.

New Development on Pond Creek, Pike County, Kentucky

By M. W. Gilliam
Williamson, W. Va.

Perhaps in no other section of the country has the development of coal land been more rapid than on Pond Creek, Pike County, Kentucky. Up to a few years ago there were only three companies operating on this creek. The railroad has recently been extended about 4 miles, making the total length of this spur of the Norfolk & Western 13 miles long. In this short distance there are now 15 coal companies working mines.

Among the latest developments on this creek is the Sullivan Pond Creek Co., which is located near the end of the Pond Creek railroad. This company has a total of 6000 acres of coal land lying on Mullens and Pinson Forks. It is now working the Pond Creek Seam, which on its property averages 5 ft. of clear coal.

This operation is employing the most modern equipment and is preparing to produce 30,000 to 40,000 tons of coal per month. During the development work the coal will be loaded over the present temporary wooden tipple. This is to be replaced by a modern tipple equipped with shakers, picking tables and loading booms. The new tipple will probably be of steel construction.

The most modern electrical equipment will be used. Power is purchased from a local central plant which furnishes 2200 volts at the substation. The first substation building has been completed and the initial installation made. In the accompanying illustrations Fig. 1 shows this stone building, which is 26 ft. long, 18 ft. wide and 11 ft. high.

The installation of only one synchronous converter has so far been completed. This is a 200-kw., six-phase,

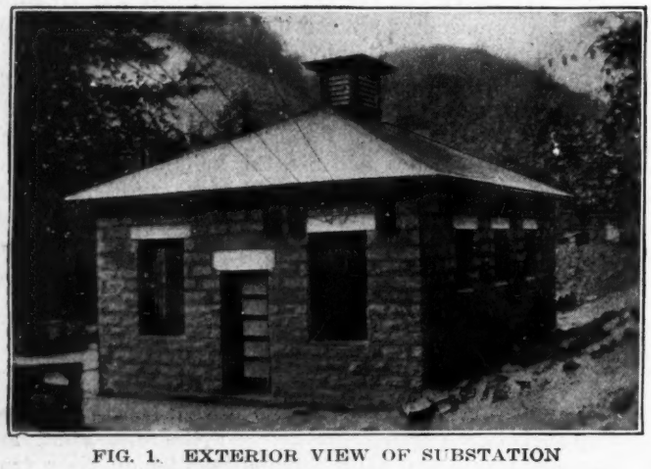


FIG. 1. EXTERIOR VIEW OF SUBSTATION

275-volt, direct-current machine, made by the General Electric Co. Fig. 2 shows the installation of this machine which is characterized by its neatness, convenience of operation and the electrical safety devices employed.

The incoming 2200-volt line is protected by lightning arresters located just outside the building. The choke coils and disconnecting switches are placed inside the building at the nearest point of entrance. Thus, in the case of unusual disturbances to the electrical equipment, they will be readily accessible. The outgoing direct-current lines are also well protected by approved lightning arresters.

Protection from low voltage is afforded by a low-voltage release, and the alternating-current oil switch is arranged so as to automatically trip the direct-current circuit breaker, upon opening of the former. An automatic reclosing circuit breaker will also be installed, and thus with the exception of starting and stopping the machine this station will require little attention. The use of rubber mats and Pyrene fire extinguishers are other refinements which add to the completeness of the station.

The inside equipment already received consists of two 6-ton General Electric gathering motors, two Sullivan C.E. 7 cutting machines and one Sullivan electric

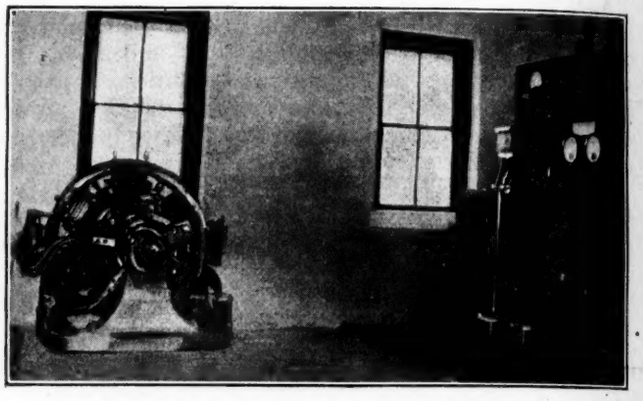


FIG. 2. SYNCHRONOUS CONVERTER INSTALLED IN SUBSTATION

rock drill. Three 6-ton General Electric gathering motors, one 15-ton General Electric haulage motor, and several other cutting machines will be delivered in the near future. This equipment will be added to as the mine is developed. The inside wiring of the mines will be modern in every detail. The heavy rails that will be installed will be provided with electrically welded bonds.

This interesting new development is under the management of William Farrell. The entire electrical work is under the direction of the West Virginia Engineering Co., of Charleston and Williamson, West Virginia.

British and German Military Mining Explosives

By Mark Meredith
Liverpool, England

At the commencement of the war, wet guncotton was the only explosive used in the British army for demolition purposes, and it was consequently employed largely in the early days of military mining in small charges. Owing, however, to its inferior cratering properties as compared with the safety explosives of the ammonium nitrate group, and the large amount of carbon monoxide present after an explosion, its use was superseded first by blastine and finally by ammonal. The latter explosive was used practically universally in all mining operations, guncotton being used for demolitions and emergency charges only.

Toward the latter part of the war, owing to the scarcity of aluminum, the supply of ammonal became greatly restricted, and experiments were made with amatol and sabulite, with a view to their use. The former explosive proved to possess only about 65 per

cent. of the lifting power of ammonal, and the latter about 85 per cent. Fortunately the necessity for their adoption never arose.

The compositions of various English explosives used or experimented with were as follows:

	Ammonal, Per Cent.	Amatol, Per Cent.	Sabulite, Per Cent.	Blastine Per Cent
Ammonium nitrate	65	80	78	...
Trotyl (T.N.T.)	15	17	8	11
Charcoal	3	..	..	...
Coarse aluminum	16	..	..	...
Fine aluminum	1	3	..	...
Ammonium perchlorate	..	..	..	60
Sodium nitrate	..	..	..	22
Paraffin wax	..	..	..	7
Calcium silicide	..	..	14	...

Ammonia proved to be an extremely safe explosive for use in trench warfare. Its chief defect was its excessive hygroscopicity, an ordinary detonator failing to fire it when it contained over 4 per cent. of moisture. It was extremely sensitive to waves of detonation; it was found that if two ½-lb. charges in tins were suspended in the air at a distance of 9 ft. apart, the second one would be fired by the detonation of the first.

The following were the usual mining explosives used by the Germans:

	Glukauf, Per Cent.	Westfalite, Per Cent.	Donarit Per Cent.
Amonium nitrate	83	95	80
Circuma	11	..	..
Copper oxalate	5	..	..
Di-nitro benzol	1	..	..
Resin	..	5	..
Troyl	..	..	17
Nitro-glycerine	..	..	1
Flour	..	..	4

The compositions of these explosives approximates fairly closely to "amatol."

Device That Makes for Safety in Shotfiring in Mines

It will be generally admitted by all familiar with the operation of a coal mine that the work of shotfiring in mines is a most hazardous occupation, requiring not only skill and judgment in the firing of the shots, but the same judgment and experience in the location, charging and tamping of the hole. A misplaced shot is always dangerous, but the greatest hazard is experienced in the firing of the blast.

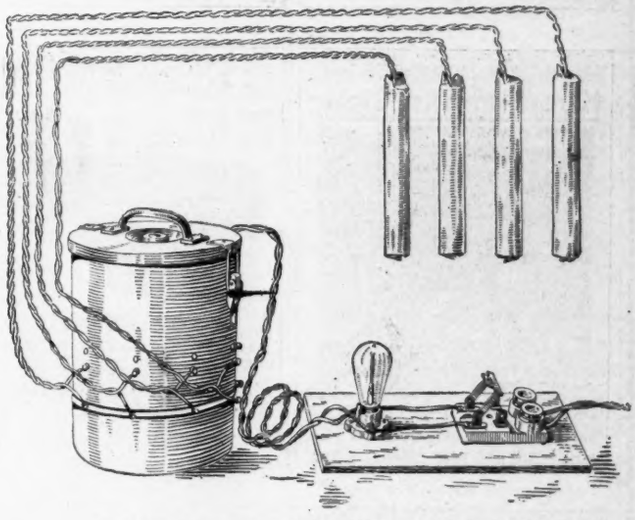
The laws in many coal-mining states provide numerous restrictions regarding the work of shotfiring, and, in some states, the employment of competent shotfirers is made compulsory. In Kansas, Oklahoma, West Virginia and other coal-producing states, the lives of many shotfirers have been sacrificed in the work.

The need has long been felt of a reliable and practical device that will reduce the hazard of shotfiring, and we believe that the Gentry shotfirer, here described, is a means to this end. The apparatus is shown in the accompanying figure and consists of an electro, automatic device, by means of which a large number of shots can be fired in succession, at regular intervals and when no one is in the mine.

In appearance, the Gentry shotfirer resembles a 25-lb. black-powder can. As shown in the figure, there are numerous electric connections, which are spaced at regular intervals around the circumference of the can. The lead wires for firing the shots run from these connections to the various places where the shots are located in the mine.

Within the can is a clock, arranged after the manner of an alarm clock and which can be set to start the firing of the shots at any desired time. The wire furnishing the current for the firing is shown in the figure as running from the switchboard to the can. The device is so arranged that the rotation of a turntable within the can establishes electric connection, successively, with each of the plugs in the circumference of the can. By this means each shot is fired in its regular order and at any desired interval of time from the last preceding shot.

The Gentry shotfirer is the result of a year and a half of study and development work to insure simplicity of construction and reliability of operation. The apparatus can be operated by any electric current and does not necessitate any rewiring of the mine. The expense

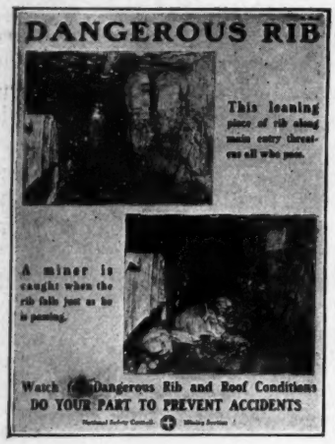


DETAILS OF THE GENTRY SHOTFIRER

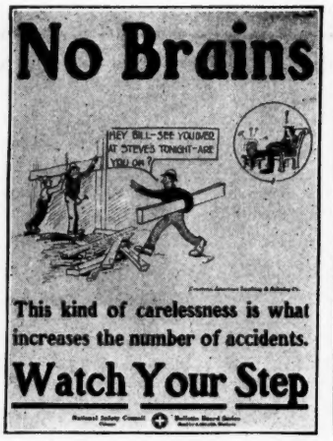
of installing this system of firing is therefore merely nominal. No argument is needed to convince the most skeptical that such a machine will pay for itself in a short time, by reducing the cost of firing shots in a mine to a minimum. This fact has been thoroughly demonstrated in a number of instances, in mines where the shotfirer is in successful operation.

The device is manufactured and sold by the Mine Supply Co., Vincennes, Ind., which has also successfully introduced what is known as the "Schellinger signal system," which is said to be replacing the pneumatic-gong signal. *Coal Age* will be glad to hear from those who have installed either of these devices, in the practice of shotfiring and signaling in mines, and to receive any comments or discussion along these lines.

COAL BROKER'S RIGHT TO COMMISSION—A broker is entitled to a commission for effecting a contract for a sale of coal when he produces to his principal a customer, ready, willing, and able to buy on the terms provided by such principal, within the period allowed, or if the time is not limited before the revocation of the agency. The right to commission is not defeated under such circumstances by the principal's wrongful refusal to consummate the sale. Nor is it necessary that the broker procure a binding written contract covering the sale, if the principal is in a position to execute the contract himself. And if a broker's authority to negotiate sales of coal is not coupled with a condition that the purchasers are to supply necessary cars, or other means of transportation, failure of the broker to provide therefor in his negotiations will not render the negotiated contracts invalid, nor deprive the broker of his right to commission. (Alabama Supreme Court; Rust & Shelburne vs. Eldorado Coal Co., 81 Southern Reporter, 567.)


DANGEROUS RIB
This leaning piece of rib along main entry threatens all who pass.
A miner is caught when the rib falls just as he is passing.
Watch for Dangerous Rib and Roof Conditions
DO YOUR PART TO PREVENT ACCIDENTS

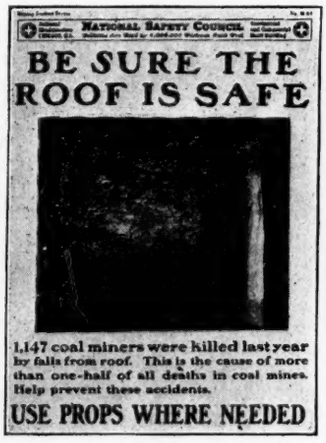
FALLING ICICLES AND SNOW SLIDES
Many serious injuries and some deaths result from falling icicles and from large masses of snow sliding off roofs.
Help eliminate these dangerous conditions by removing them or by promptly reporting them.



TAKING HIS LAST CHANCE
The motorman slows down and runs ahead to open the door.
He trips on rail and is crushed against door.
Men are not expected to take chances to hurry their work.
TAKE TIME TO DO THINGS THE SAFE WAY

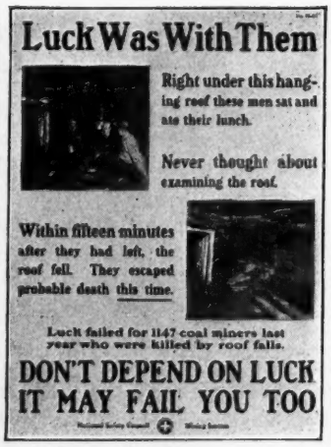
NATIONAL SAFETY COUNCIL
Keep Tracks Clear
A trip rider stumbled in front of cars and was killed.
578 coal mine employes were killed by mine cars and locomotives last year.
HELP KEEP THE MINE SAFE

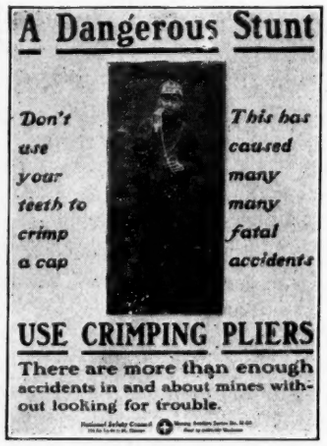
NATIONAL SAFETY COUNCIL
IT KILLED A MAN
The chip is smaller than a 10c piece and as sharp as a razor. It flew from a striking face of the sledge hammer and cut an artery in workman's groin. He bled to death!
Inspect Sledge Hammers Carefully
The same kind of an accident could happen when using hammers with mushroomed head.


NATIONAL SAFETY COUNCIL
BE SURE THE ROOF IS SAFE
1,147 coal miners were killed last year by falls from roof. This is the cause of more than one-half of all deaths in coal mines. Help prevent these accidents.
USE PROPS WHERE NEEDED

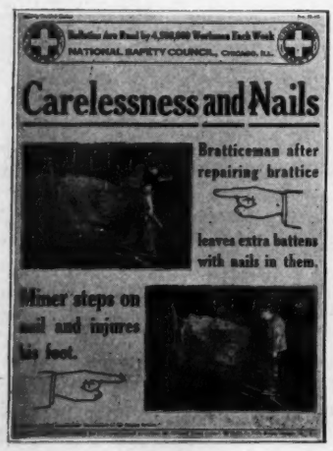
LOST HIS LEG
Guard Removed
Guard in place
The scraper thought the safeguard was not necessary. His trouser leg caught on the "bits" and he was badly injured.
Always Keep Safeguards In Place

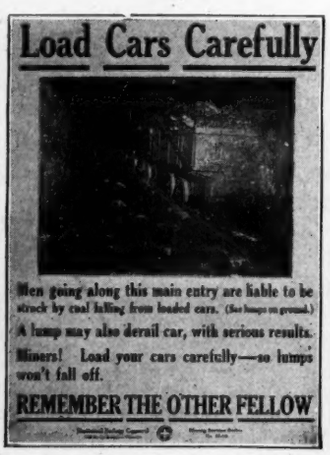
PLAYING SAFE
Look how well these buddies have their roof propped.
Miners who don't take chances are seldom injured.
How About Your Roof?

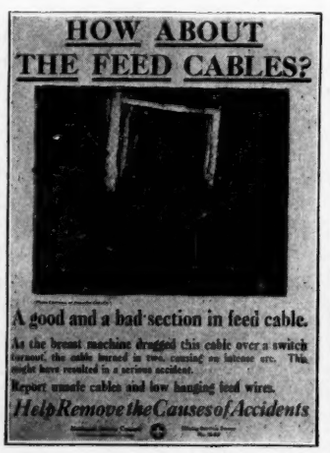

Luck Was With Them
Right under this hanging roof these men sat and ate their lunch.
Never thought about examining the roof.
Within fifteen minutes after they had left, the roof fell. They escaped probable death this time.
Luck failed for 1147 coal miners last year who were killed by roof falls.
DON'T DEPEND ON LUCK IT MAY FAIL YOU TOO

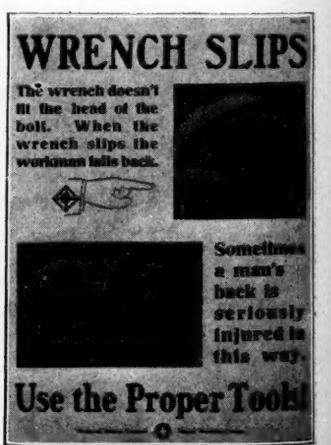

A Dangerous Stunt
Don't use your teeth to crimp a cap
This has caused many many fatal accidents
USE CRIMPING PLIERS
There are more than enough accidents in and about mines without looking for trouble.

Never Take Chances With Powder
In one state last year 62 miners were killed while using or handling explosives
Keep open lights and metal tools away from powder kegs


NATIONAL SAFETY COUNCIL, Chicago, Ill.
Carelessness and Nails
Bratticeman after repairing brattice leaves extra battens with nails in them.
Miner steps on nail and injures his foot.


Load Cars Carefully
Men going along this main entry are liable to be struck by coal falling from loaded cars. (See lumps on ground.)
A lump may also derail car, with serious results.
Miners! Load your cars carefully—so lumps won't fall off.
REMEMBER THE OTHER FELLOW


HOW ABOUT THE FEED CABLES?
A good and a bad section in feed cable.
As the breast machine dragged this cable over a switch turnout, the cable burned in two, causing an intense arc. This might have resulted in a serious accident.
Report unsafe cables and low hanging feed wires.
Help Remove the Causes of Accidents


WRENCH SLIPS
The wrench doesn't fit the head of the bolt. When the wrench slips the workman falls back.
Sometimes a man's back is seriously injured in this way.
Use the Proper Tools!

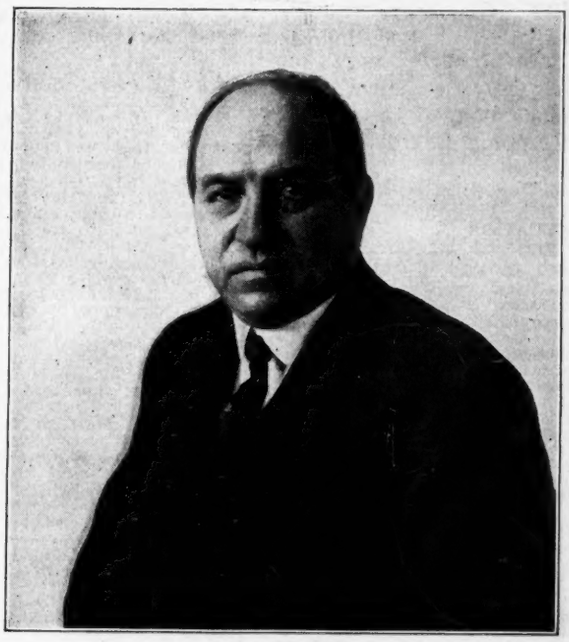
How the National Safety Council Spreads the Gospel of "Safety First"

John Mitchell

[OBITUARY]

THE death of John Mitchell, as the outcome of an attack of pneumonia, on Sept. 9, at the Post-Graduate Hospital in New York City, removed a labor leader who had for many years enjoyed the approval of the public in general, whether employers or employees. His reputation never seemed to wane, unlike the usual fate of presidents of labor organizations when they surrender their authority and enter into other pursuits. Those who had formerly been led by him still continued to respect him, however much they might question the breadth of his views and dread the fairness of his judgment.

He is the father of the eight-hour day in the coal mines of the United States, and no one would wish a return to a day of any greater length. For many years the eight-hour day has been looked upon as the most efficient period of working time. The old slogan ran, "Eight hours for work, eight hours for play, and eight hours for sleep." Though many employers strove hard to prove that a longer period of time was advantageous, the even division of the day into three equal parts for public labor, private pleasure, and personal recuperation won the day. For Mr. Mitchell's part in it he is entitled to much honor, though had he not labored so diligently for it, it probably in time would have arrived as the outcome of the natural trend of affairs.



JOHN MITCHELL

John Mitchell was a native of Braidwood, Will County, Illinois, where his father, Robert Mitchell, a native of Ireland, was a miner, a farmer, and a soldier in the Civil War. Mr. Mitchell was deprived of his mother when he was only two years old. Two years later his father married again, and about three years later died, leaving the child in the care of a stepmother. He received only irregular schooling for four years, his summers being spent in farm work.

When only ten years old he ran away from home and hired himself out to a farmer. Three years later he became a trapper boy at the Braidwood Mine. His career as a union man commenced when he was only 16 years old, at which time he entered the mines at Braceville, Ill. The United Mine Workers of America was not then formed, and it was the Knights of Labor with which he affiliated. Not many years later he might have been discovered in Colorado, New Mexico, and other states in the West and Southwest, fitting himself at night by application to his studies for the position of leadership which he was later to occupy as the president of the United Mine Workers of America. In 1890 he returned to Illinois, entered the Spring Valley Mine, becoming extremely active in the affairs of the union. As soon as the United Mine Workers of America was organized, he enrolled as a member, and he was the president of a Knights of Labor local that had been established in the Spring Valley. In January, 1898, he was elected national vice president at the Columbus convention of the United Mine Workers, his immediate superior being President Hatchford, who resigned, leaving Mr. Mitchell as acting president.

In January following—for the United Mine Workers did not hold biennial sessions at that time—he was elected president, and continued to be so elected until 1908, when he resigned on account of ill health. The American Federation of Labor made him a vice president from 1898 to 1914, and the National Civic Federation elected him vice-president of that body in 1905, after a service of many years as a member of the executive committee of the industrial department.

The most spectacular event in John Mitchell's life was the anthracite strike of 1902. At that time the President of the United States, Theodore Roosevelt, established an arbitration board by which the differences were settled. Mr. Mitchell was at that time willing to accept arbitration, but it had been refused. In honor of that settlement the miners yearly celebrate a day in honor of John Mitchell, that being the only day in the United States when the work of a *living man* is so celebrated.

It is necessary to pass over rapidly the various honors to which Mr. Mitchell fell heir. He was named one of the five trustees of the Nobel Peace Prize Fund, which was awarded to Roosevelt in 1906. In 1913 he was appointed State Labor Commissioner by Governor Sulzer. However, the Court of Appeals held that the appointments made by the governor after the regular session of the Legislature was adjourned were illegal.

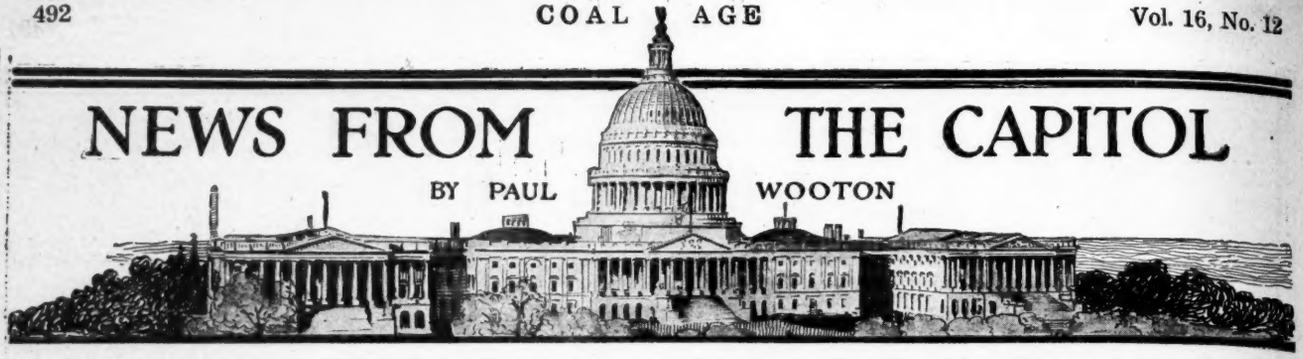
There was no objection to Mr. Mitchell other than technical, and in 1914 Governor Glynn appointed him a member of the State Workmen's Compensation Commission, but he served only one year, when he became chairman of the New York State Industrial Commission, which position he held up to the time of his death.

For a while during the war he served on no less than four separate food commissions. He lived at Mt. Vernon, N. Y., with a happy family consisting of his wife, a miner's daughter of Spring Valley, Ill., Catherine O'Rourke Mitchell, and four children, all of whom during the war entered the Navy, and one of whom, aged 22, was chosen by the physicians as the one who should try to save the life of his father by providing blood for his anemic veins. All the boys volunteered, but the youngest was chosen as being the one most likely to revive his father. Though 35 cu.cm. of blood was passed into his system, he died nine days after his operation for the removal of gallstones, from the attack of pneumonia that supervened.

He has left his imprint on the generation in which he lived, and he dies much regretted by the American people of all walks of life.

NEWS FROM THE CAPITOL

BY PAUL WOOTON



Senate Committee Obtains Data on Export Coal Situation

Consideration of the export situation of the coal industry was continued when the Senate Investigating Committee took up its hearings again on Sept. 10. Senator Frelinghuysen introduced into the record what is regarded as the latest and most accurate figures on the world coal situation. They were compiled with great care by the export coal department of the United States Shipping Board. The Shipping Board's figures are as follows:

WORLD'S COAL SITUATION

Coal Exporting Countries	Pre-War Production	Pre-War Exports	Estimated Post-War Production	Estimated Post-War Exports	Post-War Requirements
Great Britain	287,412,000	76,689,000	214,000,000	23,000,000	..... *
Germany....	191,500,000	34,880,000	91,500,000	23,500,000	48,300,000*
Canada.....	14,000,000	2,062,000	14,000,000	2,062,000	16,053,000
South Africa.	9,000,000	869,000	9,000,000	869,000	.....
India.....	17,000,000	735,000	17,000,000	735,000	.....
China.....	.....	1,515,000	.....	1,515,000	3,135,000
Japan.....	21,415,000	3,906,000	28,000,000	3,906,000	.....
Australia....	12,417,000	2,136,000	12,417,000	2,136,000	..... *
France.....	41,000,000	1,044,000	46,000,000	.....	17,000,000*
Belgium.....	23,000,000	4,974,000	14,000,000	.....	12,000,000*
Netherlands.	1,843,000	6,040,000	1,800,000	.....	8,000,000*
Poland.....	7,000,000	.....	50,000,000	40,000,000	..... *
Total available for export in countries other than United States.....				97,723,000	

COAL NEEDED BY EUROPEAN COUNTRIES OTHER THAN ABOVE MENTIONED

Portugal	1,223,000
Gibraltar	361,000
Spain	3,226,000
Denmark	3,434,000
Norway	2,391,000
Sweden	5,181,000
Switzerland	1,722,000
Italy	*12,017,000
Malta	1,186,000
Austria-Hungary (including Czecho-Slovakia and Jugo-Slovakia)	13,782,000
Greece	767,000
Bulgaria	51,000
Roumania	301,000
Russia	8,804,000

COAL NEEDED BY COUNTRIES OTHER THAN ABOVE

Africa (not including above-mentioned)	6,336,000
Asia (not including above-mentioned)	1,347,00
South and Central Africa	11,994,000
	179,511,00
Total available for export in countries other than U. S.	97,723,00
	81,788,000
Pre-war exports of the United States	19,325,00
Amount estimated necessary to make up world's total coal shortage	62,463,000

*GREAT BRITAIN—It is estimated that the introduction of the seven-hour day and the probable nationalization of the British coal mines will bring the coal exports of Great Britain to a smaller figure than 23,000,000 tons per year. The production has already dropped from 287,412,000 tons in 1913 to the estimated amount of 214,000,000 tons in 1919-20. Britain has already increased the price of her coal by $1.50 per ton, and, according to our latest advices, has entirely stopped the export of coal, permitting coal to be sold only for bunkering purposes and domestic consumption.

*GERMANY—The amount of 23,500,000 tons represents the coal to be delivered annually by Germany for the next ten years to Belgium, France and Italy according to the Peace Treaty, whereby Italy is to receive 8,000,000 tons, France 8,000,000 tons and Belgium 7,500,000 tons. The figure 48,300,000 tons comprises the need of Germany due to the loss of the Saar Valley mines and the Upper Silesian mines to Poland. The requirements of the population of the territory lost by Germany is taken into consideration and already attributed to the countries to which that territory belongs according to the terms of the Peace Treaty.

*FRANCE—Will need approximately 9,000,000 tons of coal besides the 8,000,000 tons to be supplied by Germany according to the Peace Treaty. It was, also, taken into consideration that the French industry was partly destroyed during the war, and thus a reduction of 12,000,000 was allowed. At the same time, the Saar Basin, with a production of 12,000,000 tons, has been added to the French production, and the needs of the population of the Saar Valley region and Alsace-Lorraine taken into consideration.

*AUSTRALIA—The Australian production is at present suffering on account of strikes, but this can be considered only as a temporary condition.

*BELGIUM—Needs 4,500,000 tons coal annually. It was taken into consideration that the Belgian production has dropped from 23,000,000 to 14,000,000 tons, and also, that Germany has to supply 7,500,000 tons to Belgium according to the terms of the Peace Treaty.

*THE NETHERLANDS—Owing to the fact that the Netherlands used to both export and consume a large amount of German coal and, also, to the fact that Germany will be in great need of coal herself, thus not being in position to export any, the Netherlands will have to cover her own needs of approximately 10,000,000 tons per year. Part of this is covered by her production of 1,800,000 tons, while the balance of 8,000,000 tons will have to be imported from foreign countries.

*POLAND—The production of Poland before the war amounted to 7,000,000 tons while her consumption amounted to 10,000,000 tons, but with the Upper Silesian coal mines now turned over to Poland, she will have an increased production of about 43,000,000 tons, thus making a total production of 50,000,000 tons annually, which will leave a surplus of 40,000,000 tons available for export. Most of this coal will go naturally to its prior destination, that is, to the eastern German industrial cities, partly to Austria and Czecho-Slovakia.

*ITALY—Although Italy imported annually about 12,000,000 tons of coal, she will need only approximately 4,000,000 tons for the next ten years owing to Germany's obligation to deliver to Italy 3,000,000 tons per year according to the terms of the Peace Treaty.

*OTHER COAL EXPORTING COUNTRIES—The figures on export coal applied to other coal-exporting countries are taken as they were before the war, for the war has actually not influenced the production of these countries. It can be anticipated that Great Britain will make efforts to increase the coal production of her dominions.

An increase in the production of Chinese coal can, also, be anticipated owing to the fact that Japanese interests are developing at the present time the Chinese coal mines in Manchuria and will possibly do so in Northern China.

NOTE—At the time these figures were compiled it was assumed that the Upper Silesian mines (which go to Poland according to the Peace Treaty) will contribute considerably for the relief of the European coal situation. But since that time conditions at these mines are getting worse daily and some time will elapse before Poland will be in a position to deliver coal to other countries.

It was also taken into consideration that Germany has to deliver over 23,000,000 tons of coal annually, according to the Peace Treaty. Representatives of the German coal-mining-industry have been conferring recently with the Peace Conference at Paris, at which they have undertaken to prove that Germany is not in a position to fulfill her obligations within this year, and naturally Belgium, France and Italy will have to obtain that coal elsewhere. It is safe to assume that the figure of 62,463,000 tons of coal as representing the world's shortage is rather conservative.

The Peace Conference has appointed a Coal Commission which is to consider the question of relieving the threatening European coal famine. It is expected that the work of this commission will result into a general coal rationing which will apply to all European countries.

Belgium is the only European country recovering more or less rapidly from the effects of this war. Her mines, which fortunately have all been worked during the war by the German Army of Occupation, are increasing daily their production, and it is estimated that they will have reached by this time a production of coal equal to about 70 per cent. of their pre-war output. Belgium has even been lately in a position to help France to an extent of shipping 300,000 tons of coal for that country.

It is the belief, at the Shipping Board, that while Germany cannot expect to meet her promise to export 23,500,000 tons that an increase in production from Upper Silesian Basin may be expected. This is due to the fact that Poland has no indemnities nor reparation to pay, and that taxes are certain to be less than they will be in Germany. It is regarded as obvious that Ger-

man operators will be quick to secure properties and take up production in Poland, since the result of the plebiscite is certain to give the Silesian fields to Poland.

In connection with the Shipping Board's figures a lesson can be drawn from the results of nationalizing coal mines. Prior to the war certain of the Westphalian mines had been operated by the Government. Some of these mines were literally operated at the points of the Kaiser's bayonets. Even under those conditions of absolute control neither profits nor production were satisfactory, and were less than those of privately operated mines in which conditions were similar. Now, under the extended scheme of nationalization which is to be applied in Westphalia, it is deduced that production will never reach the pre-war level.

While Canada has not taken the amount of coal this year that had been estimated, it was pointed out at the hearing other countries are taking, so that the decrease in Canadian demand is really of no significance in the general situation.

Senator Frelinghuysen also inserted in the record an extended statement of the British coal situation. This was accompanied by extensive statistical tables.

What is regarded as an important contribution to the information in regard to the export situation was furnished by the Geological Survey. The submission of the information was prompted by the desire that no wrong impression should be gained as to the German coal situation. Despite the ceding of the Silesian and Saar coal fields Germany, in the opinion of the Geological Survey, will have coal resources left with which to supply her own needs and to meet the requirements of the Peace Treaty.

No shortage of labor, speaking generally, exists in the coal-mining industry, Percy Tetlow, the statistician of the United Mine Workers of America, told the committee. There are more miners ready to work, he said, than are required to produce the maximum amount of coal which the market will absorb. The lack of steady employment was given by Mr. Tetlow as the most potent factor in keeping alive the spirit of unrest which characterizes the workers in mines. Since the mine worker is employed on an average of only 226 days a year, he contended that the only way the situation can be met is by a shorter working day. Senator Frelinghuysen told Mr. Tetlow that it is his earnest hope that there be no suspension of work during the negotiations which are to take place between the miners and the mine operators.

Mr. Tetlow pointed out that the United Mine Workers had had a very difficult situation trying to curb radicalism among the miners. This was due, he said, to the number of foreigners engaged in the industry, who are not familiar with our institutions. He told of the continuous efforts which have been made to Americanize the foreign element among mine workers.

That the price figures submitted by the National Coal Association to the Committee be checked by the Federal Trade Commission was a suggestion made to Senator Frelinghuysen by the Railroad Administration. While the Railroad Administration did not challenge the figures directly, it was pointed out "that the Government prices were maximum prices and there well may have been contracts in effect with prices lower than the Government prices. It should also be made clear by the National Coal Association whether the Government prices given are merely the Government run-of-mine prices or the average of all the Government prices weighted by the number of tons of each size of coal sold at the price fixed for that size."

H. B. Spencer, of the Railroad Administration, at the request of the Committee, stated that during 1918 five million tons of anthracite had been consumed by the railroads.

The principal presentation of the case of anthracite companies was made by A. S. Learoyd. He declared most emphatically that, in his belief, nothing is going to happen to create a shortage of the domestic sizes of anthracite. "Our fear," he asserted, "is quite to the contrary. We are going to have difficulty in selling our coal before the end of the calendar year." He predicted that the Canadian purchases this year would be 3,600,000 tons. With the exception of 30,000 tons sent to Cuba for use in gas plants, there are no other exports of anthracite. Mr. Learoyd characterized as unfortunate the refusal of the Hudson Coal Co. to report its figures to the Anthracite Bureau of Information. He deprecated statements that New England was far behind in its receipts of anthracite and produced tables showing that distribution, following the Fuel Administration's allotments, is practically normal.

Certain portions of the anthracite region have all the laborers they can employ, Mr. Learoyd told the Committee. But there are certain companies who could increase their production if more men were available. Car supply is ample, he testified. He also noted an increased efficiency since the prohibition edict due to a larger percentage of men reporting to work on the days following holidays and pay days.

Much of the complaint with regard to coal prices, Mr. Learoyd said, is due to the use of the ton as a unit. With such a large unit, the increase in price seems large when, as a matter of fact, coal has increased less than nearly any other commodity. Anthracite, at the mines, he pointed out, had it been purchased in April showed an increase over the pre-war price of 51.5 per cent. With the monthly increases, the price today is 62 per cent. over the pre-war prices, he stated. The causes for the increase in price were made necessary, he testified, by increases in labor cost, increases in the cost of material and supplies and increases in taxation. In analyzing these, he showed that wages had advanced from 55 to 75 per cent. as compared with 1914. Materials and supplies necessary to anthracite production have increased from 100 to 110 per cent. In addition to the heavy increases in taxes, both local and Federal, there are numerous other increases to be added after the coal leaves the mine.

Mr. Learoyd pointed out that he could not attempt to analyze the costs and profits after the coal left the mine. He pointed out that his company had lost 3 cents per ton on production from Jan. 1 to July 31. S. D. Warriner, the president of the Lehigh Coal and Navigation Co., pointed out that the 8 per cent. dividend paid by his company is made up from returns on the company's railroad property and by drawing upon accrued surplus. The failure of early buying was given as another cause for increased expenses. Mr. Warriner expressed the opinion that his company could end up the year with a profit of some 2 or 3 per cent. He pointed out the necessity of holding down prices on domestic sizes so as not to decrease that demand with its consequent bearing on steam-coal production. He said that oil, gas and coke burners had brought about serious competition to the anthracite industry.

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A Contrast in Salesmanship

WHEN a salesman comes to the manager of a mine, he inquires what the manager is in need of, and the manager, having indicated the line of his needs, takes the salesman onto the ground and shows him the actual conditions and asks him just what he can agree to do with the problem as it presents itself. The salesman looks over the conditions carefully and makes his proposition. Perhaps something entirely different is offered the manager from what he has been confidently expecting. But whatever it may be that the salesman thinks advantageous, it is suggested courteously with reasons given for the substitution.

Then comes the matter of price. The salesman probably has his figure inflexibly determined in advance, according to rate sheets immutably fixed by his firm, the more immutable the better the concern. But his manner on this matter is conciliatory. He explains apologetically that the price is so outrageously high that he is almost ashamed to offer his goods, but then what can he do? Prices of all materials are so high and labor is now paid so much more than ever before that even if his company was content to do business without the reasonable profit it is charging, he would still have to ask what a few years ago would have been almost an unthinkable figure.

That is how sales are made today—sales of everything except labor. The union says, "We demand." The seller of labor abuses the buyer. The labor salesman makes no attempt to fit his offering to the needs of the purchaser. He is not endeavoring to render any service whatever to the man to whom he is trying to sell his labor. He consults only the convenience of the firm he represents, which is, in his case, the union. "We demand," is the first and last of his argument. It appears fourteen or fifteen times in painful and discourteous iteration in the anthracite mine workers' formula.

No wonder the operator is moved to say, "No." How much better would be a courteous explanation, something of an apology for frequent changes in the schedule of rates; how much more desirable a readiness to knit the desire of the seller into the needs of the purchaser. All the doctrine of dissent, all the psychology of negation, is bound up in those uncompromising words—"We demand." The evil spirits of men are always aroused by such inconsiderate words of defiance.

If there is a motto which fits best the coat of arms of a trust—labor trust or other—it is the word *mandamus*, "we demand." Let labor go easily. Words like these, the expressions of irresponsibility born of unrestrained power, foreshadow something other than victory. Where powers are thus arbitrarily abused there rises in the minds and hearts of the victims a spirit not of submission but of self-defence and reciprocal defiance. The public is ready for reason, for argument, for service, but not for the bludgeon—and in the end the public pays, not the coal companies.

The public always pays. Why then does it not take an interest in making labor contracts accord with the dictates of decency and reason? In the long run it pays the costs of victory. Why does it never inquire as to the merit of the matter at issue? The public pays sorrowfully, bitterly, vengefully. Why then does it not look at something more than the final score, but with diligence condescend to read the labor items and insist that those items be kept in accord with reason?

Every undue wage increase, one, that is, that more than restores the purchasing status of the individuals affected, enables the individual to acquire new tastes, which tastes form a new standard of living. This fact, any new adjustments for increased costs of living must carefully consider, or dissatisfaction will result. With production remaining unchanged, better standards of living for any class are impracticable unless certain other classes of workers are to be compelled to accept lower standards than heretofore.

Only Narrowly We Escaped A Low-Price Era

AS the public looks back at the trying days which followed the signing of the armistice, it may begin to realize how happily but how narrowly it escaped an era of lowered prices, lowered wages, uncertainty, bankruptcy and panic. Had wages been allowed to drop, the nation would have experienced a period of soup kitchens. Everyone would have waited till the bottom of the depression was reached. Then, having lost all confidence, months and even a year or so would have run before everything would have moved surely.

Fortunately, wages did not drop. They were the rock on which confidence speedily erected a foundation. People soon became ready to buy, and to produce, when they found that what cost $1 one day could not be bought for 50c. a month later. Unfortunately, there was some small degree of doubt and hesitation. Bitter is the price we must pay for it, because it reduced production of numberless needed articles. The lack of production in the early part of 1919 has no little to do with the present high level of prices.

It is customary to say that idleness is regrettable because it causes hardship. When the idleness is at an end, then the misfortune is believed to have reached an end also. But the shortage of production in the time of idleness causes a lack of material in the busy time that follows, and the public continues to suffer from that shortage.

It is hard to blame the producer, especially the coal operator, for shutting down his operations in the face of a lack of orders; it is difficult to blame the wholesaler and retailer for having been slow to buy when prices seemed uncertain; it is uncharitable to blame the public for having been cautions in building and in purchasing articles of a staple character in view of the general uncertainty. But if they had all had a little more faith and a little more judgment in forecasting the future, there would not have been a shortage of articles of all kinds.

Nowadays, when men do not get steady work they want more pay to balance the idle time. It is not

possible for economic law to grant such increases to the majority at least of workingmen. If a farmer works half as many days as he normally should, he will probably get about half as big a crop as usual. So if the world works half time, it produces half product, and it can live only half as well.

Thus on the correctness of our economic faith rests our living. There are twelve months in our year; we must work in all of them. We must find a way somehow to make every day count. Our campaign, with the motto "Let's go," must start in the future at the first appearance of lagging, and when the next lull comes, our powerful Uncle Sam himself, with roads, city pavements, sewers, buildings, harbors and river works, and even reclamation-service expenditures, must set the pace for the rest of us.

The mine workers of Kansas had 364 strikes in two years and won $784.84 as an outcome. They lost over a million dollars in working time during these suspensions of work. How much more profitable is farming than freebooting! How much better is working than striking! Blessed are the peacemakers. No wonder men write to us and others to tell them of some happy regions where there are no unions and no Howats.

Our Experience in Nationalization

FROM our experience with the railroads we can readily see the outcome of nationalization. Rates have risen both for freight and passenger service, the traveler has less trains to choose from, small freight is not removed daily, special tourist rates are suspended, the service at all large stations is inadequate for the amount of travel, privileges in passenger transit are restricted, space which was granted free on club cars to chair-car passengers is now often sold to any who desire to purchase it and the pullman ticket holder is denied the privilege of using it without charge, freight cars are not supplied when or in as large a quantity as desired while demurrage charges are higher. Meantime, food charges on dining cars have been raised except where the portions served are smaller.

Under those circumstances it is a matter for regret that the railroads are not paying their expenses. But even the showing obtained, unfavorable as it is, has been secured by letting repairs wait. In 1918, even after the armistice, no rail was ordered. In 1919 only 200,000 tons of steel rail have been purchased, about one-tenth as much as the railroads of the country need for maintenance purposes. From 30 to 40 per cent. less ties have been bought than proper maintenance would require. Freight cars are getting rapidly into disrepair. Just how much nobody knows. However, because no figure can be put upon the neglect of repairs of freight cars, is no evidence that this is not one of the more deplorable items. Some have estimated that the car repairs as a whole have fallen 30 to 40 per cent below the proper level. Coal-car repairs are admittedly behind those of other railroad cars.

The public had a right to presume that as soon as the armistice was signed, the Government would try to make up for the lowered expenditures during the war by an activity that would be bracing to business. The administration, however, showed its normal sense of the fitness of things by going around begging private business for jobs on behalf of discharged soldiers while refusing to buy anything to make up for previous failures to purchase. Much of the work of the Bureaus of Reëmployment could have spared their labor had the railroads placed their orders, reassured business and so kept everything moving.

Nothing was clearer than that natural law was more regulative of business than the Administration of Railroads. Some business did come to the steel companies, but none from Walker D. Hines or the railroads he supervised. The only stimulus which Mr. Hines supplies is the fear of a car shortage which will make all material in great demand or a strike of his employees that will prevent all goods from reaching a market. He has so feared to spend a dollar that he may shortly have to spend much more than that sum to secure the supplies which he has delayed buying.

Really, the public may be excused for conceding that under normal nationalization conditions it would be justified in expecting that a better chief than Walker D. Hines would be chosen to direct the destinies of the railroads and by indirection the destinies of the nation. Transportation is an important feature of our national life. If it is badly handled by a false economist we may again go back to zoning, commandeering, diversion of coal, pooling, workless days and other expedients, with Mr. Hines declaring that the fault rests not with him but with the wicked trusts and unexpected hindrances.

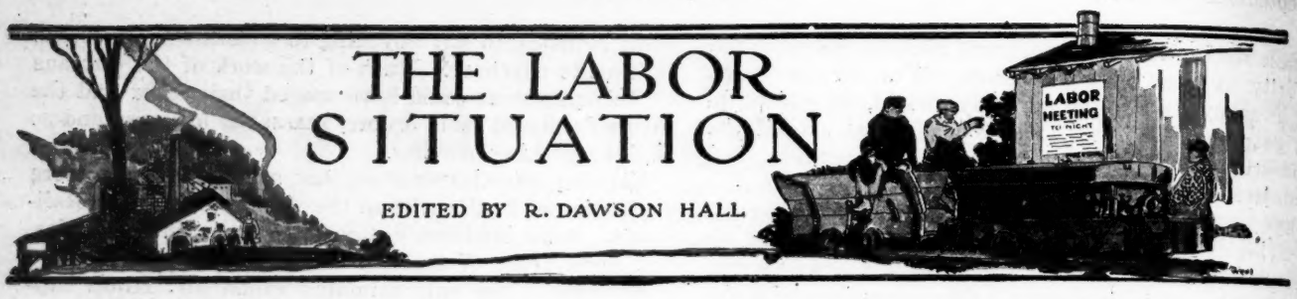
Of all those who, by delaying purchases, nearly caused a panic, our Director of Railroads was among the chief. The public has recovered its confidence despite his misjudgment, and now, perhaps, as the result of his course of conduct, we shall pass from a near panic of low prices to the opposite pole, a high-price climax.

We are told that labor when sold, is not a commodity, because men may not so regard the only thing a man has to sell. But when the miner buys the labor of farmer, of shoemaker, of boarding-house keeper he is not buying a commodity, so may not these persons also conspire without limit to sell him the only thing they have for sale at the highest prices they can get for it? No, that is profiteering, for while mine labor is not a commodity, farm labor, shoe labor and kitchen labor, clearly are. Is it not so?

When the World Is Poor

OWING to the war we are a year or more behind in the supply of our needs. That gives us a promise of steady work, but assures us of penurious times till our wants are supplied. This is no time for magnificent pipe dreams. The corporeal basis for these does not exist, though a steady fare of gorgeous motion pictures may nightly cause us to believe that it does. We must make up for the destruction of the past, fret as we may at the size of the bill.

When we get back to the plethoric housing and full shelves and bursting granaries of pre-war days we can, with some hope for success, plan for a new world and a better future. If our baseless visions of plenty, however, make us work industriously and beam kindlier than ever on one another, well and good. The vision, though untrue, will be well justified in its results. If it merely makes us discontented. then the sooner we wake up the better.



THE LABOR SITUATION

EDITED BY R. DAWSON HALL

General Labor Review

A few weeks ago it seemed permissible to hope that the leaders of the labor unions would remember that the mine workers were citizens of a country where other working men had to live and that what one laboring man compelled his employer to concede, other laboring men would have to pay. The labor leaders of the coal industry know that the working man cannot argue about wages as the boy does about apples—that the more he picks the less will go to waste. The more wages the miner gets, the less of his product others can afford to buy and the less of the material made by the use of his product others can purchase.

The labor leaders full well know the folly of the indiscriminate wage, the excessively short day and nationalization. For a while they led everyone to think, and appeared to think themselves, that they were going to be reasonable to the poor underlings who did not have the distinction of being engaged in the mining of coal. But in the end they were hurried into approving the wildest schemes of the wildest schemers in the union.

Thus the "Leaders" Must Follow the "Led"

It is little good having men with a grounding in economy, men with a sense of what is right, if in the upshot they are to be pushed into one folly after another by the less instructed and less ethical of their followers. Acting President Lewis is rated as being a wise and honorable man, but after he had put his ear to the dust he came out unreservedly for a 60 per cent. increase.

The public seems to take little interest in the matter, just as if it was not in any way the real victim of the wage revision. It always acts the same way. It sympathizes with the mine worker, wishes him Godspeed and a larger wage and then tears its hair when the wage is granted and blames the operator for its own fault and the cupidity of the mine worker. The consumer is the party most at interest; he should form his own conclusions as to the matter, and let the mine worker know what they are in no uncertain manner. He should back the operator in his fight when he is right, condemn him when he is wrong and stand ready to pay the price for coal which any rightful increase in wage makes obligatory.

He should not condemn the operator if that functionary refuses to make improper concessions and so causes a strike and business paralysis and should not fail to condemn him if he tries to avoid a strike by making unfair concessions which inevitably increase the cost of coal. There is an equity in wage revisions. The consumer should have an inkling as to what that equity is and hold the conferees, at least roughly, to it.

Would Have an Increase of 113 Per Cent.

An increase in wage of 60 per cent., a decrease in time of 25 per cent., making an increase per hour of 113.33 per cent., is demanded despite the fact that living has gone up only 75 per cent. at most since the war began and large advances have meantime been granted—all this would seem to be a matter in which the public will rightly have some interest when the workers' representatives meet the operators at the Hotel Iroquois, Buffalo, Sept. 25.

If the discussion drags along without result for about five weeks, namely, till Nov. 1, then there is to be a strike. The no-suspension rule is not this year to be put in force. As for the automatic-penalty provision, the darling of the union leader as much as the operator, and of the Fuel Administration, it is to be swept away. Probably no one will much regret it. The union will suffer the most. The penalty was always a somewhat welcome goad to belabor the men into accepting the orders of the union administration, whereas the operator usually found it interfered with the ending of an illegal strike and so quite generally consented to remit it. The penalty has always seemed to add to the acerbity of disputes and to give a further occasion for quarreling. Perhaps it is just as well abolished.

Biggest Meeting Union Ever Held

The Twenty-seventh Consecutive and Fourth Biennial Convention of the United Mine Workers of America met at Gray's Armory at 10 a.m., Tuesday, Sept. 9. Never has a larger convention of that body assembled. There were over 2000 in attendance, the Indianapolis Convention in 1918 being attended by only 1800 delegates. The crowd overflowed all the accommodations. The session opened with an address of welcome from the state of Ohio, the city of Cleveland, the Cleveland Federation of Labor and the chiefs of the railroad brotherhoods whose headquarters are in Cleveland.

Henry Raisse of the Cleveland branch of the Federation was temporary chairman. Mayor Harry L. Davis spoke for the city. The city of Cleveland, knowing that some friction exists between Indianapolis and the United Mine Workers of America, at present domiciled there, is anxious to capture all future conventions for which Cleveland is certainly a convenient point. John Moore, president of the Ohio State Federation of Labor and also, by the way, president of District No. 6 (Ohio), extended a welcome to the visiting delegation on behalf of the State Federation.

Brotherhoods Are the Honored Guests

Warren S. Stone, Timothy J. Shea and W. G. Lee, representing the railroad brotherhoods, welcomed the guests, and, not at all incidentally, laid out their revolutionary program before them—that Plumb plan which is so full of menace to the real interests of the laboring men of this country. Acting President Lewis and the mine workers, however, did not seem to realize the mischief bound up in that Plumb foolishness.

Mr. Lewis then made his address as acting president. He introduced a list of foods showing how they had gone up in price, but he did not show how rent had remained unchanged meanwhile, nor did he take pains to tell how powder had been "stabilized" by union contracts. As a matter of fact, the increases in prices have been more than discounted by the wage raises of the day workers, and that if it were not so the proposed increases alone would be more than sufficient to offset them.

It is of no interest for us to be told about phenomenal changes in prices. The whole increase is less than 75 per cent., and the day laborers are seeking an increased hourly wage of 113 per cent., which is 50 per cent. more than the increased cost of living, ignoring all that has been granted already. The quoted prices may extenuate the men's demands, but cannot justify the outrageous wages being asked.

Mr. Lewis presented the following statements to the assembly as a basis for their action:

First—The United Mine Workers of America is in no way responsible for the failure of the Senate of the United States to ratify within a reasonable length of time the treaty of peace and to thus officially terminate, in the bituminous fields, the Washington wage agreement. We

have, as an organization, demonstrated our good faith and exhibited every moral desire to liquidate our responsibilities. We are today, however, face to face with a situation wherein we cannot justify any further delay as concerns our own affairs. I accordingly recommend that this convention take action declaring the Washington agreement officially terminated at a date not later than Nov. 1.

Second—In the event that a basic agreement in the Central Competitive Field is not negotiated by the date fixed for the expiration of the present contract, I recommend that there be no sectional settlements by districts or groups of districts, but that there be a complete cessation of mining operations throughout our entire jurisdiction.

Third—In the event that a satisfactory basis agreement is reached in the Central Competitive Field, that it shall from its date of operation affect all outlying districts and be retroactive to that date.

Fourth—I recommend that the automatic penalty clause, incorporated, as a war-time provision, on the Washington wage agreement, be eliminated in our next contract.

William Green followed with his report, which was recorded in sufficient detail last week. The auditors, F. J. Mossop, Albert Neutzling and T. G. Morgan, then presented their report for the eight months—Dec. 1, 1918, to Aug. 1, 1919.

It shows the total membership, including fully-paid and exonerated members, to be as follows, though it is proper to say that some of the figures in the table have been omitted and the location column has been amplified:

District No.	Location	1918 December	1919 March	1919 July
1	Northern Anthracite (Scranton)	15,411	17,441	16,446
2	Central Pennsylvania (Clearfield)	47,760	49,384	39,848
3	Not organized	.....	.....	.....
4	Not organized	.....	.....	.....
5	Western Pennsylvania (Pittsburgh)	36,861½	40,967½	43,652½
6	Ohio	46,486½	44,205	42,019
7	Central anthracite (Hazleton)	13,913½	14,797½	16,504½
8	Block coal of Indiana (Brazil)	1,150½	1,093½	967
9	Southern anthracite (Shamokin)	15,741	22,906	26,827½
10	Washington	4,799	5,227	4,292½
11	Bituminous coal of Indiana (Terre Haute)	30,798½	32,553½	27,136
12	Illinois	96,251	99,303½	79,241
13	Iowa	15,766½	14,861	11,359½
14	Kansas	10,935½	12,376½	10,355
15	Colorado	2,751	3,774½	3,618½
16	Maryland	4,785	5,296	3,399
17	Northern West Virginia (Fairmont)	26,101½	27,206	26,216
18	Rocky Mountain Field, Canada	6,385	7,876½	171
19	Tennessee	11,532	13,656½	11,164½
20	Alabama	7,207	9,750	8,323
21	Arkansas, Oklahoma, Texas	16,963	14,922½	12,766½
22	Wyoming	7,808½	7,363½	5,654
23	Kentucky	4,921½	6,324½	6,216½
24	Michigan	3,286½	2,397½	2,343
25	Missouri	9,195½	8,877½	5,645½
26	Nova Scotia, Canada	0	0	11,453½
27	Montana	4,789	4,936½	3,838½
28	Vancouver, Canada	178	9	0
29	Central West Virginia	5,717	6,935½	5,203½
828	Local union in Indianapolis	15	10½	12½
		447,510	474,452½	424,67[illegible][4]

These figures are not exactly those of the auditors, for they had evidently been the prey of a printer in a hurry, who mixed the columns after they were set, as can be seen by adding the columns in the tables of paid-up membership and exonerations which in the auditors' report appear just before the table above reprinted. It will be noted that William Green misquoted the total membership in July, which was 424,674, as here stated, and not 453,040 as Mr. Green made it. He has carried the average exonerations for eight months as the exonerations for July, whereas the number had dropped below the average of 43,648 to only 15,282 in the latter month.

Nova Scotia has recently entered the United Mine Workers and the outcome is shown in the table. Central Pennsylvania has lost 10,000 members since March. Indiana is losing members rapidly, nearly 5000 have left since the month just mentioned. Illinois had lost twice as many as Central Pennsylvania from March to July, owing to the dislike of the administration. Iowa is losing heavily, as also Kansas and Maryland. The Rocky Mountain field of Canada lost nearly all its members to the One Big Union, but it is now recuperating and repenting. All the South and Southwest weakened between March and July, and Wyoming did the same. In July Kentucky had not commenced its recent phenomenal growth. A drop of 50,000 in 4 months is a big fall for the union. It appears that its strength increases largely only where organization work is being done, and that when the organizers are withdrawn the work dwindles.

The morning session of Sept. 10 was devoted to reading telegrams, some expressing regret at being unable to be present and others containing expression of goodwill. Samuel Gompers wrote that his "venerated father" had just died and his funeral would be on Sunday. Frank J. Hayes expressed his regret that sickness detained him in bed. John P. White sent his kindly greetings. Word came also from the Colorado State Federation and from that of Ohio. The delegates from the suspended locals—25 in number—of Illinois tried to get the convention to seat them. There were other delegates from the northern anthracite region, central Pennsylvania, Ohio, the "bituminous" district of Indiana, Kansas and Alabama whose right to vote was also contested by district organizations.

Committees were appointed on Officers' Reports, Resolutions, Constitution, Appeals and Grievances, on the Wage Scale, and on Transportation. The last is a mere matter of auditing the allowances of transportation to delegates.

Would Exhibit Mrs. Sellin's Photograph

The question of the Breckenridge trouble was introduced by Philip Murray, district president of No. 5 district (western Pennsylvania or Pittsburgh field). A picture of Mrs. Fannie Sellins' body mutilated by the discharge of a riot gun or riot guns was handed around the convention. President Murray and Delegate Mattey (or Matti) of district No. 7 were appointed a committee to arrange for the exhibit of the picture at motion-picture shows.

The cigar makers then asked that the members purchase only union-labeled cigars, while the striking musicians of Cleveland memorialized the delegates asking them not to patronize the movies and vaudeville houses, to the end that these musicians could compel these places to make the mine workers and other patrons of such places pay more for admission. The afternoon session was mere marking of time waiting for the action of the committees. A retired anthracite mine worker of District No. 1 had his songs peddled among the delegates and had them endorsed by the convention.

A more serious matter was a resolution of regret at the death of Mr. Mitchell. Chris Evans was made historiographer of the union with a large committee to assist him. Several delegates sang songs of their own and of the composition of others. The report of the Auditing Committee was presented, and Wednesday's meeting closed.

Officers' Reports Are Endorsed

Thursday was devoted to the report of the committee on Officers' Reports. The committee approved them in full and the convention unanimously voted their acceptance in their various parts and as a whole. On Friday the convention took a recess to do honor to John Mitchell. On Saturday the question of the cost of living was discussed. It was passed on to the Federal Administration as the only agency capable of checking the operations of what the meeting regarded as food gamblers and unscrupulous profiteers.

All of those present did not think that everything was being done that could be done. Some wanted commissions to fix prices of everything in daily use and others Congressional legislation reducing the prices of food and clothing 25 per cent, with a penalty of confiscation of all property for those evading the law. There were some who clamored for the prosecution and dissolution of the packing houses; others advocated the erection of Government cold-storage warehouses so as to secure a proper disposal of foodstuffs and others even declared that the punishment of profiteers should be death. One speaker advocated a 90-day period to await lowered prices, failing which a general tie-up of industry would be arranged. This was along the lines of the proposals of the railroad brotherhoods.

Three men from Kincaid, Ill., have a resolution calling for the abolition of car pushing in the mines, as has been already provided in central Pennsylvania.

The entire convention approved a resolution calling for legislation making lynching and mob violence Federal offenses. One can readily see a number of mine workers around Belleville going to jail for the new Federal offense. In that immediate vicinity were recently enacted the murders of the East St. Louis negroes and the German Prager, and more of like kind are possible in the future. The mine workers will indorse the law but some of them, at least, are not over prone to maintain it. However, there are many other craftsmen of like kidney.

One resolution, that was indorsed, called for the forming of an alliance with the four big railroad brotherhoods to seek nationalization. Apparently the railroads are to be nationalized first and then the mines if the mine leaders' plans materialize. Other basic industries are to follow. A meeting to this end in which the brotherhoods will be represented will be held Oct. 1. Glenn E. Plumb, attorney for the brotherhoods, spoke and his speech will be printed and distributed to all local unions, as was also the speech of Seymour Steadman on behalf of Eugene V. Debs and other "political prisoners."

The questions as to the formation of a labor political party, the repeal of the Espionage Act, the release of Thomas J. Mooney and other "political prisoners," the Russian campaign and the use of state guards and coal and iron police in labor troubles was reserved for later discussion with another question that the mine workers are bitterly divided on, that of the affiliation with the American Federation of Labor. The radicals want to ally themselves

ALAS THESE ARE DAYS OF BIG FEET

PRINCE CHARMING (after looking at the slipper, Living Prices of 1914)—'Tis too small for such a graceless foot.
CINDERELLA (approaching)—He must be looking for me.

only with organizations favoring "direct action" and violent methods, but in this they will make small headway as against the wiser counsels of the majority who do not believe that through the wreckage of industry will be found a way to prosperity.

With the Hudson Coal Co.'s employees showing the way the Delaware, Lackawanna & Western R.R. Co., Coal Department mine workers started a strike, an order for this suspension of work being issued Sept. 8 by the insurgent authorities. John T. Dempsey, the district president, who had returned from Cleveland, was entirely unable to control the men. So 15,000 more idle workers were added to the 12,000 of the Hudson Coal Co., who were already idle.

Fortunately the men employed by the Hudson Coal Co. in Luzerne County refused to go out in sympathy with those in Lackawanna County or for any alleged grievances of their own. So the mines near Plymouth, at Baltimore Nos. 2, 3 and 5 and Langcliffe colliery still continued work.

The trouble with the D., L. & W. started at Archbald colliery about the clearing up of a fall of rock which the company wanted loaded at company-work wage rates and not at consideration rates. But at this mine also the mechanical loader was bitterly discussed and opposed.

The strike of the D., L. & W. men took place on Sept. 9. The company did not try to settle it, saying it was an illegal strike and any discussion with those who were thus striking was a violation of the contract. The officials resolutely affirmed that work must be resumed before any discussion of grievances could take place.

John L. Lewis on Sept. 10 sent an order from Cleveland Ohio, instructing the men to return to work. On Sept. 11 three locals of men employed by the Hudson Coal Co. voted to go back to work on Saturday, Sept. 13. These locals had a membership of 3000 and their members work at Eddy Creek, Grassy Island and Miles Slope collieries in Oliphant. Soon thereafter, all the strikers in both the Hudson Coal Co. and the Delaware, Lackawanna & Western R.R. Co.'s mines went back to work.

In western Pennsylvania labor quiet still reigns. It is one of the older unionized districts and the ferment of early unionism has long died down. Unionism is not a new thing in that district and does not have to be kept working night and day to sustain the interest. Even the Breckenridge trouble does not much excite it. The mine workers have heard before of persons who tried to violently drive out nonunion men and got themselves into trouble and they regard the matter at Breckenridge, or rather at West Natrona, as probably the natural outcome of such attacks.

S. Norman Adams, superintendent of the Allegheny Coal and Coke Co., has filed suit against Philip Murray asking $50,000, charging that Mr. Murray wrote President Wilson a letter making false and defamatory statements. The letter of Mr. Murray is said to state that Norman Adams was not more than 20 ft. away from Mrs. Sellins when he ran up to his deputies and ordered them to kill her. It also says, it is alleged, that Mr. Adams went up to the body and dragged it by the heels to an automobile and threw it into the machine.

SAY UNION WILL MAKE THE MINERS POOR

Two lodges in the Williamson field have within the last few days adopted resolutions protesting against the institution of a local or locals of the United Mine Workers in that neighborhood, the vote at one secret lodge at Freeburn being unanimous. At the other there were only two votes cast against the resolution. The resolutions adopted recite that it has been the experience of members of the lodge who have worked in or about organized fields that the "loss of work, loss of money, suffering from lack of food and bloodshed during strikes, stirred up by radical agitators, far exceeds any benefits that the layman might have anticipated that he would derive therefrom."

Organizers of the mine workers recently attempted to bring the workmen at Freeburn into their union, but the effort was futile largely because of the indifference and opposition of the men to whom the appeal was made.

As recorded the miners in the Kanawha district of West Virginia were nearly all on strike during Sept. 4, 5 and 6 when many of them joined a mob for the invasion of the Guyan field. Virtually all were back at work on Monday, Sept. 8; yet there were still threats among those, who had been implicated in the uprising and who had been forced by Governor Cornwell to return to their homes, that at the first opportunity they would again organize and mobilize for another invasion of the Guyan field unless they were allowed to have their way in forcing it into the union.

In other words, there was no spirit of repentance displayed, it being evident that the miners were still bent on making trouble. In the following official statement, made by Governor Cornwell on Monday, Sept. 8, fair warning has been given of what may be expected, if any further disorder takes place:

"The incident of the past few days which has unfortunately placed the State of West Virginia in a very unfavorable light before the country, is the inevitable outcome of persistent radical propaganda to which I have frequently referred in public addresses during the past few months, and is the logical result of newspaper articles and utterances of agitators and political demagogues who were diligent in telling the wage-workers that their liberties were being assailed whenever a measure has appeared in the legislature designed to protect human life and to preserve the public peace.

"The sudden uprising of a large body of armed men was carefully planned by some person, or persons, whose identity it is the duty of the officials of the United Mine Workers as well as public officers to establish. Runners went through the Kanawha coal fields and presidents of several local unions summoned special meetings telling members the order had come from 'headquarters' to arm and assemble.

"I know of some cases where members inquired who brought the order, and the local officers of the miners' union replied that they did not know, and could not produce any official documents. The wildest and wierdest stories were circulated, one being that Fred Mooney, district secretary of the United Mine Workers, had been assassinated in Logan County, these rumors all being spread for the purpose, of course, of inflaming the minds of the men.

"When I went among them in the mountains Friday night, spoke to them and had some of them appeal to me with distressed countenances to know 'Is it true that they are murdering women and babies over in Logan County?', I saw how earnest and sincere were some of these men and how grossly deceived they were by the promoters of the plan, and I made up my mind, because of their innocence and misinformation, that no force should be used to stop the invasion if it could possibly be avoided.

"I assured the men that night that if they would disband then and go home I would investigate the conditions and practices in the Logan coal field and that if any of them were unlawful I would do my best to see that they were corrected and that I confidently believed I could secure that result. I left them in confident belief that they would respond to my appeal and disband.

"While the majority at that meeting did return home, part of them ignored my proposition and took up their march. Though the men who so continued to march did not keep faith with me, I intend to keep faith with them and will make a thorough investigation of the conditions in the Logan field. The Coal Operators' Association over there has wired me, also, demanding such an investigation.

Keeney Discomforted the Bolshevists

"At the time I was at the meeting, I knew that it was a carefully organized and deliberately planned movement and that those directing it were under no misapprehension. I further knew that the officers and citizens of Logan County were arming and preparing to resist the invasion of those armed men, and that many of the Kanawha men would be marching to certain death if they persisted in their unwise course. So I took no chances. I communicated with Secretary of War Baker. In consequence General Leonard Wood, commanding the central military department of the United States army, immediately arranged to send troops into the affected districts. They were held in readiness to move on a moment's notice, and would have been thrown into the affected area on my request in a very few hours.

"Of course, I am most grateful that the final step was not necessary and it is but fair to say that the termination of the unfortunate affair without bloodshed is due to the energy and efforts of Frank Keeney, president of District 17, United Mine Workers of America, whose appeals were finally heeded.

"This I want to emphasize: This thing, or anything like it, must not occur again. Extreme patience was exercised for the reason I believed that it was due to misinformation given by a few to the many, but there can be no excuse for any similar misunderstanding on the part of anybody hereafter. Any future march of armed men across this state bent upon invading another county and breathing threats to shoot up people will be regarded as an attempt at revolution and will be dealt with on the instant as such. I want this statement to be understood in its fullest sense by the people of the state in general and any other like minded persons in particular, in order that all may know what to expect in the future."

The insurgent miners of Illinois are continuing in spasmodic fashion their resistance against the authority of United Mine Workers' officers and are keeping up their strike against the enforcement of the penalty clause contained in the contract with the operators. While the authorities are gradually bringing greater repression to bear upon the "armies" which have taken the field to "pull out" the miners who have remained at work, the work of reorganizing the locals whose charters were revoked is proceeding in some localities. The reorganized locals are composed of men who are loyal to the organization. In this manner the radicals and agitators are to be frozen out.

All Three Armies Failed to "Pull Out" Men

The "first army," which started from Belleville, with the Carterville district as its goal, was captured by the sheriff and a posse when it approached Pinckneyville, in Perry County, and was escorted back to the Randolph County line, where the sheriff of that county and a posse took it over and escorted it to the St. Clair County line. The retreat was not halted until Marissa was reached. From there all but a handful of the men returned to their homes. A later attempt of another group to get into the Carterville district on a freight train was likewise unsuccessful, the invaders being captured and placed on another train and sent back whence they came.

The "second army," which started from Collinsville, came to a halt near Staunton, where the remnant of it is awaiting the action of the Cleveland convention. The "third army," which started south from Springfield, has made little progress.

Operators of the Standard field met at Belleville and decided to call upon Governor Lowden for protection of their property and employees. The effect of this was to cause the Belleville and St. Clair county authorities, which had been rather indulgent with the strikers, to take steps to restrain their activity in interfering with those who want to work.

The strikers have called another State convention to be held in Belleville. Their last convention, held in Springfield, voted to return to work, but the radicals, led by the Belleville and Collinsville groups, started a new rebellion against their own representatives and continued to strike.

Conditions are gradually becoming normal in District 18, United Mine Workers of America, which comprises Eastern British Columbia and the Province of Alberta, and according to reports received by the Minister of Labor up to Aug. 25, 31 of the leading coal mines of the district are again being worked. This represents 60 per cent of the total output. While some opposition still is being experienced by the officials of the United Mine Workers from advocates of the One Big Union idea, the resistance of the latter appears to be declining.

The books, papers, and monies, that are the property of the International Mine Workers of America, District 18, and which were in the custody of Edward Brown, secretary of the International of Calgary, who later transferred his allegiance to the O. B. U., have been handed over to International officers. The latter have left to attend the convention to be held at Cleveland, Ohio, at which it is expected there will be some representation of District 18, if it can be arranged.

"One Big Union" in District 18 Is Dead

The Coal Commissioner, W. H. Armstrong, in a recent statement said that the O. B. U., as far as District 18 is concerned, is nonexistent. He asserts that the miners who forsook the international union are seeking reinstatement, and that their applications are being granted in the majority of cases. He said that the men are going back on exactly the same terms as they were working before, but that when they were in a position to sign a contract it was likely that a new agreement would be entered into between them and the mine owners. During the strike between 8,000 and 9,000 men were idle, and the wives and families of the miners suffered to a considerable extent. The mines, however, were not materially affected, and while it might be a few weeks before full shifts can be taken back, they all would be working in the near future.

Fortunately, it is said on good authority that there will be no shortage of coal this winter in the area which is accustomed to get its coal from District No. 18.

DISCUSSION *by* READERS

EDITED BY JAMES T. BEARD

A Modified System of Longwall

Letter No. 5—It gave me great pleasure to read the remarks of W. H. Luxton, *Coal Age*, July 31, p. 201, in answer to my comments on his previous letter regarding the working of coal by the longwall system, under a light or shallow cover. I was thoroughly convinced that Mr. Luxton's first letter did not convey his real meaning, which he has now explained more clearly. It would be well for all of us if we could act in the same straightforward manner and reply to our critics in the way in which Mr. Luxton has done, which is not only a credit to the man but shows him to be broad-minded and practical.

Referring to his statement concerning the "willful waste of coal in the use of the room-and-pillar system of mining, owing to the pillars that are left unworked because they cannot be recovered with safety, or because they are needed to support the surface and prevent damage to buildings." I want to say that my own personal observation enables me to endorse every word of this and to add that such waste is nothing short of a crime when one considers the value of the coal.

Too often it happens that rails, ties and trolley wires are buried in such workings beyond the hope of recovery. When making a general inspection of room-and-pillar workings under a great depth of cover I have frequently observed much pillar coal that could not be recovered, besides iron rails and even an occasional car that had been caught in the squeeze or buried under a heavy fall of roof.

Pillars Lost in Squeeze Reported Extracted

There are many instances where these lost pillars are reported, by mine foremen, as extracted when the mining engineer comes around to make his survey to extend the mine map and bring it up to date. The only way in which such reported extractions of coal can be checked up is for the mining engineer to take close measurements of the thickness of the coal, at numerous points, when making his survey.

When the necessary measurements are put on the mine map it is possible to calculate the amount of coal that should have been taken out, and to compare this with the total output of the mines since the last survey was made. When this is carefully done, the results will show the great loss sustained by the foreman's failure to extract all the pillars.

Again, by means of a careful taking account of stock, at regular intervals, at a mine, and comparing this with the supplies purchased, it is possible to show what weight of iron rails and how many cars, trolley wire, tools and other equipment have been lost in the mine.

I fully agree with Mr. Luxton in the emphasis he places upon "the need of eliminating wasteful methods of mining and burning coal." The time is fast approaching when the matter of total extraction will have to be considered seriously. But, in the meantime, it is a disgrace to the coal-mining industry that so much of valuable fuel is lost beyond recovery.

In closing, let me say that wherever the thickness of the seam does not exceed the maximum for longwall working there is no system of mining that will compare with that method in respect to the completeness of extraction and safety in mining. No system can afford better ventilation of the working places, or greater concentration of the work, or less damage to the surface, or a lower cost of production, than the longwall system of mining.

ANDREW O. BAIN.

McKeesport, Penn.

Work of Gathering Locomotives

Letter No. 2—Referring to the inquiry that appeared in *Coal Age*, July 24, p. 164, concerning gathering motors, I agree with the statement that previous articles have dealt mainly with features of design of which the practical man knows little. The advanced theory of coal conveyance makes this subject an important one. Even in the same mine, motors vary in the amount of work they will perform because of grades and conditions of track. Also different conditions exert an influence where loaded cars are handled in place of empties.

The question of gathering loads and returning empty cars must be given great weight, because the motorman must at all times be in such a position on the locomotive, when going after loaded cars, as to be able to couple such cars without the assistance of the helper or triprider. This leaves the brakeman free to keep empty cars clear of the motor on its return from the face of a room or entry.

The mine where I am employed at present as gathering motorman has endeavored to use some two or three systems for gathering cars at the face. The most successful of these, all things considered, is the one that I am using at present. This has proved to be a time-saver, and, furthermore, the work is more equally divided between motorman and triprider. The accompanying illustrations. Figs. 1 and 2, show the methods that were tried. Of these the latter has proved the most efficient, everything being taken into consideration.

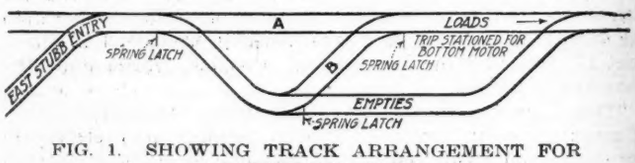


FIG. 1. SHOWING TRACK ARRANGEMENT FOR GATHERING CARS

Following the theory that the gathering motor must take the place of the mule, it seems a rather difficult matter, to the average mining man, that he must replace the old switches with longer ones and that more ties

must be placed under the rails, even in the rooms. Every joint must be fishplated because of the friction between the locomotive wheels and the rails, especially where sand is often used. Without fishplates it will only be a matter of time until the rail is pulled from the joint tie.

I would suggest that a No. 2 frog be used, as its length would enable the cars to pass in and out of the switch without binding, thus decreasing derailments. Guard-rails should be used on both sides of the frog, on the main entry and in rooms. Some difficulties are sometimes encountered at the faces of working places where short rails or "jumpers" are in use to enable loaders to get their cars near the face.

From my own observation I would say that, on the average, one of these cars is derailed in every working place each day. This entails a marked decrease in the daily tonnage. Where it is possible I think the motorman should be used in repairing the track over which he hauls cars.

The motor, in one instance with which I am familiar, is a 5½-ton Ironton machine with Edison batteries and

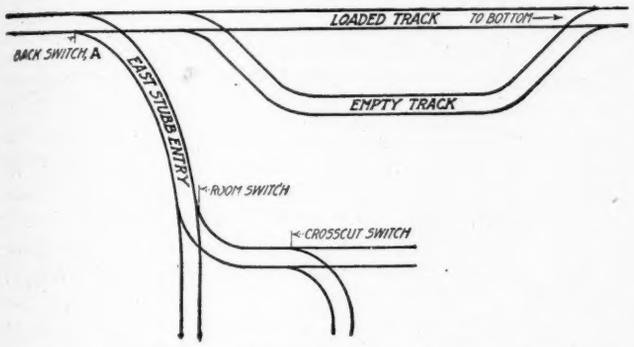


FIG. 2. SHOWING ANOTHER ARRANGEMENT OF TRACK

a General Electric armature. This combination, I can say, without fear of contradiction, has proved itself efficient; and its work has been accomplished beyond all expectations. The grade, is from 5 to 8 deg. against the loads. Formerly it took a good mule to pull one car, now the motor pulls five and six cars a length of 20 rooms, the distance between rooms being about 40 ft., making the round trip 1600 feet.

Now, the motor pulling five cars per trip, averaging a trip every 25 min. or say 20 trips in 8 hours, would haul 100 cars. The track conditions are far from being good, while other disadvantages are in proportion. The cars are equipped with plain bearings, are box shaped and have a capacty of 3 tons each. They are provided with a hook-and-link type of couplings.

The management of any mine should, so far as possible, avoid changing motormen and tripriders, because of the difficulties encountered by these men in familiarizing themselves with all working places. This is especially true with the motorman, because he should know where all the different grades are as well as the bad track conditions.

Also, another great advantage in saving power, which is essential where the motor has to economize in order to last the full shift, is that power should not be applied while the reverse is set for the opposite direction; or, in general, "plugging" should not be resorted to.

While the machine is not in motion the motorman should examine his locomotive to see that every bolt is in place. Larger fuse wires than necessary should not be employed. The motorman will do well to furnish himself with tools to make minor repairs that would necessitate some delay waiting for the electrician.

Tools for placing derailed cars on the track should consist of one "dollie," or "dog", made of 1½-in. square iron, so clamped to the rail as to enable the flange to right itself, together with an oak block cut in a "V" shape and fitted with ⅛-in. strap iron; also a chain about 10 ft. in length.

CLAUDE W. CARRUTH.

Edwardsville, Ill.

Perpetuating the Thrift Habit

Letter No. 2—I have been looking over some of the back numbers of *Coal Age*, and am not a little surprised to find that a subject of as much importance to the coal industry as the *thrift habit* among miners should receive no more attention than what has been given it by the single letter of W. H. Noone, which appeared in the issue, Apr. 24, p. 765.

Although the question of thrift has been given much thought by some of the ablest thinkers, generally speaking, the thrift habit is in its infancy among American miners. Attention was brought to this matter at the beginning of the great war, since which time the press generally has urged the necessity of cultivating the habit of thrift among all classes of labor.

Employers of Labor Can Inspire Thrift

The Foreword that appeared in *Coal Age*, Feb. 6, emphasized the need of coal companies doing everything in their power to inspire thrift among their employees. This was a step worthy of the mature consideration of all employers of labor, but of none more than of those who control operations underground. It is this class of workers who, by reason of their surroundings, are prone to shiftless habits. The figures given in the Foreword mentioned show that, through patriotic motives, millions of the families of the country are practicing thrift by methods of economy that enable them to invest in Thrift Stamps and Liberty Bonds.

To my mind, one of the great questions that confronts us today is, How can this habit of thrift be perpetuated? Now that the war is over, we wonder if the same interest will be taken by coal companies and other employers of labor to inspire the thrift habit among their employees, in the same patriotic spirit that was manifested during the four years of the war.

As has been suggested, coal companies can perform a national service in building up and fostering habits of thrift among their men. Because of their superior knowledge of finance, employers of labor are in a position to wield a strong influence over their employees, and it is to their interest that the latter should cultivate and practice habits of economy at home and at work.

The Miner With a Savings Account

The average miner, having once started to save his earnings, is first interested in observing the growth of his bank account, and it is not long before he begins to think of owning his own home, which fact makes him a more reliable and steady worker. This is in strong contrast with the thriftless attitude of miners who shift from place to place and become the tools and prey of men whose sole object is to stir up strife by causing discontent among their fellow workers.

In his letter to which I have referred previously, Mr. Noone says, "The incentive of ownership of property

is a strong factor in perpetuating thrift." Experience has proved that miners who own their own homes are more reliable and valuable as workmen. They make better citizens, being interested in schools and churches, and are generally active in elevating public morals. In any issue that may arise between them and the company, they are more reasonable in their demands and take less interest in propaganda designed to engender strife and dissatisfaction. Nothing will stimulate a man's citizenship more than the consciousness of being a part and parcel of the community in which he lives and responsible for its peace and security.

In concluding, let me say that before habits of thrift can be perpetuated they must be created, cultivated and developed as national characteristics of American citizens. American miners have long been indifferent in respect to laying anything by for the future. Many have contracted extravagant habits that will be extremely hard for them to overcome.

While all miners made big money during the war, the most of them know little in regard to its safe investment and will have to be educated in that direction. There is no more opportune time than the present to begin the work of teaching our miners to live and plan for the future and to lay by something for the proverbial "rainy day." Let us urge all coal companies to take up this matter at once and devise ways and plans by which thrift habits can be fostered among miners.

JOHN ROSE,
Dayton, Tenn. Former State Mine Inspector.

Barometer vs. Outflow of Gas

Letter No. 7—I have been much interested in the discussion of the various subjects that appear each week in *Coal Age* and, particularly, in that relating to barometric pressure as affecting the expansion of gases accumulated in abandoned areas in mines. These practical talks, giving the experiences of the other fellows who are doing things, is just what the average mining student requires and he cannot have too much of it. The exchange of ideas and opinions invariably brings out many points of interest that are not to be found in any of the usual textbooks on mining.

In many instances, theories and conclusions are expressed that are the outcome of long and varied experiences. Textbooks are all right in their place, but the majority of them are so confusing that an average miner is often at a loss to understand their meaning when studying to fit himself for a higher position in life. But practical talks and illustrations, such as are given in the discussions and inquiries that appear in *Coal Age*, are just what men want.

Theoretical Value of Barometric Readings

A considerable experience in the management of coal mines in Canada and serving, until lately, as district inspector of mines in British Columbia, have caused me to take a deep interest in the subject of barometric pressure, in its relation to coal mining. No student of mining will discount the reliability of Boyle's or Mariotte's law, giving the relation of the pressure and volume of air and gases; or the law of Charles or Gay Lussac, defining the relation of their temperature and volume. The former law was stated something like two and one-half centuries ago and the latter is at least a century old. During all that time, these laws have stood the test of clever and practical men.

But, returning to the practical consideration of the effect of changes in barometric pressure on accumulations of gas in mines, let me say that the ventilation of a mine should be such that any possible changes in atmospheric pressure would not, in any way, prove a menace to the general safety of the mine and the workers therein. No practical mining man will attempt to say that the barometer and thermometer are without practical importance, in the study of mining problems. I believe, however, that their use should be confined to the laboratory.

In order to make clear my meaning, let me say that in my opinion, wherever these instruments are required to indicate the approach of danger in a mine, there is something radically wrong in the system of ventilation employed in that mine. Either that is true or the ventilating unit is too small for the mine. In other words, whenever a fall of barometric pressure is considered seriously in connection with maintaining safe conditions in a mine, I would say that the ventilation in that mine is inadequate.

Practical Side of the Question in Mining

My theory is that it is not good mining practice to permit a mine to get into such a condition that it becomes necessary to worry over a slight fall of the barometer. Under normal working conditions, it is an unpardonable practice to allow the accumulation of large bodies of gas, either in the abandoned workings or any other portion of a mine. While there may be exceptions to this rule, I am inclined to think that they are few and far between.

Most of our mining laws very properly require the keeping of daily records of atmospheric pressure and temperature, which are of value in the study of such records. But, where a mine is properly ventilated and the volume of air is sufficient to dilute and render harmless the gases produced in the workings a mere fall of one inch of the barometer need not be taken seriously, and the same statement will apply to a fall or rise in the temperature of the outside air. Wherever there is any cause for alarm from such occurrences, I claim it is time for the inspector of mines to require some drastic changes to be made that would increase the volume of air passing through the mine to improve its ventilation.

Special Conditions in Mining Practice

No doubt, conditions will, at times, make it impossible to dilute the gas generated in a mine rapidly enough to prevent an accident; but such conditions are not normal. For instances, the severe bumps that so frequently occur in the Crow's Nest Pass district and, with less severity, in the Jasper Park collieries, Alberta, are accompanied with unusually heavy outflows of gas into the mine workings. Conditions such as these are exceptional, and yet I question if the barometer or thermometer has ever been of any practical use in reducing the danger arising from the conditions prevailing in these mines.

To avoid danger, it is our practice, in the Jasper Park collieries, to keep the circulation at all times above the average requirements and, as a result, the effect of a rise or fall of barometric pressure is seldom if ever noticed, which should be the case in all mines generating explosive gas. My suggestion is that future mine man-

agers (foremen) should study carefully the causes and their effects in mines; but, in practice, it is of the utmost importance to so arrange the ventilation as to prevent the accumulation of gas, and one will not then lie in bed at night fighting the battles of the day.

There are cases where peculiar local conditions will modify the volume of air passing through the mine, particularly in the winter months. The point that I wish to emphasize, however, is that it is not good mining practice to ventilate a mine on a narrow margin of safety. Hardly any mine can be truthfully said to be exempt from the possibility of a sudden outburst of gas, and justice to mine workers requires the taking of all possible precautions against such occurrences.

Where a mine generates sufficient gas to warrant the use of safety lamps the gas feature should predominate in all safety considerations. Gas is something that should not be trifled with in the operation of a mine. Its existence justifies the most serious consideration of the management.

At no stage of the game, should the miner or laborer be expected to give the gas question the consideration that it demands of the mine manager. He must always provide a wide margin in the ventilation of the mine, which must be so arranged that the volume of air can be increased at any moment to meet any abnormal condition that may develop in the workings.

J. H. McMILLAN, Gen. Supt.
Jasper Park Collieries, Ltd.
Pocahontas, Alta., Canada.

Markers on Mine Trips

Letter No. 1—I was greatly surprised to read the statement of J. J. S., contained in his inquiry, *Coal Age*, Aug. 28, p. 379, regarding the conditions he has described as prevailing in the mine where he is employed, where he says a steam locomotive is used on the main haulage road to haul cars in and out of the mine.

With the adoption of present-day mining laws in the different states, and with the great advance that has been made in the operation of coal mines in the interest of health and safety, it would seem incredible that any mine is being run after the manner described by this correspondent.

USE OF A STEAM LOCOMOTIVE ON A MINE HAULAGE ROAD CONDEMNED

In the letter to which I refer, the statement is made that the smoke given off by the locomotive operating on the haulage road makes it impossible to see the rails, at times, when walking in and out of the mine. Such a state of affairs is what we might expect or believe to have existed a half a century ago, and I heartily agree with the editor's reply that such a practice should not be permitted in any mine. Also, that refuge holes and proper clearance space should always be provided at the side of a main haulage road to enable men to safely pass the cars hauled in and out of the mine. I would add that these refuge holes should be kept whitewashed, so that they can be readily seen, and not be permitted to be obstructed by refuse and other material.

Not the least surprising to a mining man is the fact that the inspector of mines in that district would tolerate the condition of affairs described by our friend, which it must be said is nothing short of a menace to every man employed in the mine. If a steam locomotive must be run into the mine, it should only be permitted to operate on the return airway and the quantity of air in circulation should be sufficient to dilute the gases and sweep away the smoke and keep that road clear for the safety of the engineer running the locomotive. A law should be made and enforced prohibiting men from traveling such a road and compelling them to use a special travelingway, or pass in and out on the intake air-course when going to or from their work.

ELECTRIC SIREN OR WHISTLE A GOOD ALARM ON A MINE LOCOMOTIVE

In regard to the use of some effective means to warn men of the approach of a mine locomotive and enable them to reach a place of safety in time to avoid accidents, in mines where men must travel a haulage road, allow me to suggest that a whistle, or an electric siren operated by a special battery on the locomotive, will give out a distinct and peculiar sound that will be heard at a great distance and will not be confused with other noises such as the rattling of cars, which the sound of a gong too often resembles.

It is well known that some sounds carry farther than others. During the war, aviators have proved the fact and tell us that the bark of a dog can be heard at a greater distance than the noise of heavy artillery firing. Although this statement appears to be somewhat exaggerated, it emphasizes the fact that a shrill sound, as that of a siren, is penetrating and can be heard over a large district. The use of a siren on a mine locomotive would have a special advantage over a headlight, which could not be seen around a curve in the track.

McKeesport, Penn. ENGINEER.

Lawful Examination of a Mine

Letter No. 4—I heartily agree with the statement of Robert A. Marshall, *Coal Age*, Aug. 21, p. 334, to the effect that the examination of a mine should begin not more than three hours before the men enter the mine. In this connection, allow me to describe a system employed in a mine where, I recall, two firebosses were employed, one during the day and the other during the night. The day fireboss worked from 9 a.m. to 7 p.m., and the night fireboss from 9 p.m. to 7 a.m.

In the dayshift, the dayman makes the regular rounds of a day fireboss from the time he starts at 9 a.m. till 4 p.m. At that hour, he starts to examine the mine for the nightshift, completing the work at 7 p.m., in time for that shift to go to work.

Likewise, the night fireboss comes on at 9 p.m. and makes his regular rounds of the working places till 4 a.m., when he starts to make his examination for the dayshift, completing the examination by 7 a.m., in time for the daymen to enter the mine. This system has the advantage over that in general use, in that it gives to each fireboss a full day or night shift, instead of part day and part night.

Another advantage is that it gives more time and a better opportunity for the careful examination of each working place, and makes it possible for the fireboss to remove any dangers that he may find, at the time they are discovered, instead of marking off the place with a danger board, according to the present custom. The system also permits the two firebosses to work in con-

junction with each other and gives a better control of any danger that is found to exist, as there is no long period of time that must intervene between the finding of danger and its removal.

It may be argued that this system would increase the cost of operation over the old system where a single fireboss performs the entire work. In reply, let me say that the increased cost of two firebosses would be largely compensated by the reduction that would result, in the payment for accidents and loss of time in the operation of the mine. The system would certainly comply with the letter of the law and give a larger margin of safety than the one now in use.

The frequency with which I have observed accidents occur in the afternoon when no fireboss was on duty has led me to think that many miners are prone to become careless in the absence of the fireboss. Moreover, if a fall occurs in the air-course, or the fan has been stopped at some time during the night, the fireboss has little chance, under the old system, to remove the resulting accumulations of gas in the workings, in the three hours he is allotted to make his examination. As a result, the men are held back and the day's output reduced.

With others, I hope to see this subject fully discussed and would like to know the opinions of *Coal Age* readers, in respect to the system just outlined. The discussion cannot fail to promote a deep interest in the duties of the fireboss, who assumes a heavy responsibility when compelled to examine a large territory in a short space of time and remove whatever dangers he may find. FIREBOSS.

Johnstown, Penn.

Letter No. 5—This is a very interesting subject in coal mining and one that should arrest the attention of every mine worker, especially foremen and firebosses, or "mine examiners" as they ought to be called.

The mine examiner should be one of the most efficient men working in and around a mine, because the safety of every man underground depends on the thoroughness of the examination of the workings to detect and remove any dangers that may exist in them. It goes without saying that he should be sober and intelligent and understand every detail of mining work affecting safety. This includes a practical knowledge not only of gases but of roof conditions and methods of timbering rooms, airways, haulage roads and traveling ways.

EXAMINATION TO BEGIN NOT MORE THAN THREE HOURS BEFORE WORK STARTS

Speaking of the lawful examination of a mine, it is my opinion that an examiner should not be permitted to commence his examination more than three hours before the men enter the mine for work. Even in that time, changes in atmospheric pressure and roof conditions are liable to occur that may make a man's place dangerous for work. The barometer may read 30 in. in the evening, say at 9 or 10 p.m. and fall to 29.5 or 29.3 in a few hours.

To avoid a possible sudden fall of the barometer during the night developing a dangerous condition in the mine workings, which would not be detected if the work of the examiner were done earlier in the evening, all mining laws should state that the examination of a mine shall not begin more than three hours before the men go to work. This provision is especially needful where a mine gives off large quantities of gas and has broken roof conditions and abandoned areas in which gas may accumulate.

Reference has already been made to the Illinois Mining Law permitting the examination of a mine to be made "eight hours" before the men enter the mine for work. I fully agree with the suggestion that this is entirely wrong and should be condemned. It is all right that there should be a night examiner at work in the mine, who would be able to detect whatever might be wrong and remove the danger before much damage resulted.

DANGER FROM IGNITION OF A GAS FEEDER

It may happen that a miner would light a feeder of gas when firing a shot before going home. He takes a chance and goes away assuming that everything is all right. If there is no nightman in the mine, the first men in, in the morning, would find a bad fire in progress and the mine would be thrown idle that day and perhaps longer, waiting for the fire to be extinguished and the mine made safe again for work.

The employment of a night examiner to avoid the danger that might arise from unexpected occurrences in the mine should not, however, be interpreted to mean that the examination of the workings should take place at any time during the night. The work of examining a mine, to insure the safety of every man's place before he is permitted to proceed to work, should be limited to a space not exceeding three hours.

In my experience in this work, I have seen dangerous conditions develop, after the examiner had performed his work in this short space of time and before the men entered the mine for work. In one instance, a bad roof fall cut off the ventilation from a whole section of the mine and the places filled with gas. Fortunately, that mine was worked exclusively with safety lamps and the first men in, in the morning, were able to see that something was wrong and gave the warning that saved many lives.

MINE EXAMINERS ARE GIVEN TOO MUCH TERRITORY

The chief trouble in the examination of a mine is due to the examiner being given too large a territory to look after and he is unable to give the proper attention to the number of working places that he must examine, to say nothing of the old workings, manways and traveling roads in his section.

In Great Britain, no mine examiner is permitted, by law, to have more than forty places to examine, which gives him ample time to make a thorough examination of every place and observe the condition of the roof and timber, make the test for gas and note the ventilation in each place. He is then able to give a conscientious report of the inspection.

Referring to our own mines here, nightmen are often at work on the road, timbering and cleaning up falls and, occasionally, hauling the loaded cars to the shaft bottom, so as to insure a good start in the morning. When this is the case this work is mostly done by the time the fireboss or examiner enters the mine to make his morning examination. But in any case, the nightmen must be out of the examiner's way and withdraw from those places in the portion examined, so as to insure that no door will be set open by a nightman, but that everything will be left undisturbed after the examiner has performed his work.

Forty Fort, Penn. FIREBOSS.

INQUIRIES OF GENERAL INTEREST

ANSWERED BY JAMES T. BEARD

Terms in Mine Timbering

Kindly explain the meaning of the terms "square set" and "skin to skin," used in mine timbering.

Scranton, Penn. STUDENT.

The expression "square set" is mostly used in shaft timbering and describes a variety of framing used in large excavations to support heavy pressures. The timbers of a square set are boxed into each other, the joints being carefully made to insure a snug fit. All the joints are designed in a manner to resist pressure from any direction. This form of timbering is naturally expensive and only used where the size of the excavation and other conditions require. The expression "skin to skin" means that the different sets of timber are placed close against each other.

Half-Soling Mine-Car Brakeshoes

Recently, attention has been drawn, by numerous references in *Coal Age*, to the advantage gained in repair work by the use of electric welding. The adaptability of this means of welding has advanced so rapidly within the past few years that, today, there would seem to be no limit to its application and usefulness in every industry employing mechanical equipment and particularly in coal mining where many operations are conducted in isolated districts and there are no repair shops at hand.

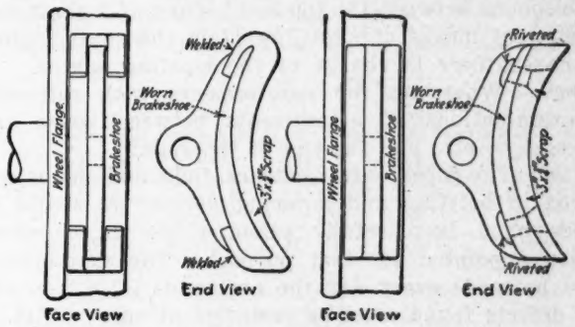
In isolated localities there is always a possibility of the entire plant being thrown idle, for days at a time, because of a breakdown in some part of the machinery or other equipment. Not only is this loss of time avoided in many instances, but the cost of repairs is very greatly reduced by the use of electric welding to mend broken parts or restore worn surfaces.

In coal mining, there are many opportunities to apply the electric welding process in the restoration of worn-out equipment that would otherwise go to the scrapheap. In this connection, it has occurred to me that one instance of its application that is worthy of notice is to be found in the restoring of worn-out brakeshoes and making them fit for continued service.

As is well known to mining men, the brakeshoes on mine locomotives and cars are subject to rapid wear and must be scrapped unless some ready means of restoring the wearing surfaces is available. It is my belief that brakeshoes that have been worn so thin that they are almost ready to be thrown away may be given a new lease on life by the use of electric welding and some of the scrap material that is so abundant around coal mines put to a useful purpose. I have found nothing better than a piece of mine-car binder, 3 x ¾ in. in section, to restore the worn surfaces of brakeshoes.

As shown in the accompanying sketch, there are two ways in which this scrap binder can be attached to a worn brakeshoe to restore the usefulness of the latter. On the right of the figure is shown a face and side view of a worn brakeshoe that has been restored by rivetting to its face a piece of 3 x ¾-in. car-binder.

While the method of riveting this scrap material to the worn surface of a brakeshoe has been successfully applied, I concluded that repair work of this kind can be expedited and its cost reduced by the use of the electric-welding process. I have illustrated my idea of the manner in which this may be done in the face and side view, on the right of the figure, where the ends of



TWO WAYS OF REPAIRING WORN BRAKESHOES

the scrap binder are bent over and welded to the back surface of the brakeshoe. This method of attachment would eliminate the more tedious process of riveting the scrap material to the shoe and would doubtless prove more serviceable and cheaper, if it can be accomplished in a suitable time and at a reasonable expense for the necessary equipment and skill required in its operation. As I have never seen this method tried, it would be interesting to learn the opinion of *Coal Age* and its readers in regard to the feasibility of this suggestion. C. W. STAFFORD.

Huntington, W. Va.

The suggestion of this correspondent is a good one and will be appreciated by all whose use of such equipment makes it easy to understand that a great saving in repair costs can be effected by some such practical method of restoring the worn surfaces of brakeshoes.

Undoubtedly, the electric-welding process can be used effectually to accomplish this work. It would certainly be more readily applied and prove more serviceable in the end than the method of riveting mentioned by Mr. Stafford. However, some of our practical mechanics who have had experience in electric welding will be able to suggest the best method of applying this process in the welding of scrap material to the brakeshoe, possibly without the need of turning over the ends before welding, as illustrated in the figure.

Some will no doubt suggest restoring the worn surfaces of brakeshoes by the use of welding rods especially if scrap material of the kind required is not available. We hope to hear from many on these points.

EXAMINATION QUESTIONS

ANSWERED BY
JAMES T. BEARD

Anthracite Foremen's Examination, Lykens, Penn., May 6, 1919

(*Selected Questions*)

Ques.—What means of communication are required between the tops and bottoms of shafts and slopes and to the engineers, at all collieries?

Ans.—The anthracite mine law (Art. 4, Sec. 9) requires that all shafts and slopes shall be provided with a suitable means of communication by speaking tube or telephone between the top and bottom of a shaft and an efficient means of signaling from the shaft bottom to the engineer in charge of the hoisting engine.

Ques.—What are the requirements with reference to examinations of attachments between ropes and cages, cars, etc., and the end of the rope?

Ans.—The ropes, safety catches, links and chains employed in hoisting and lowering persons in shafts or slopes must be carefully examined by a competent person appointed for that purpose. The examination must be made every day the apparatus is in use, and any defects found must be remedied at once. (Art. 4, Sec. 13.)

Ques.—What are the provisions for brakes on drums of hoisting engines, and what must be provided to prevent the rope from falling off the drum?

Ans.—An efficient brake (Sec. 14) shall be attached to every drum used for hoisting or lowering persons or material in any shaft or slope. The drum must be provided with flanges or horns of sufficient dimensions to prevent the rope from slipping off the drum (Sec. 15), and these must be properly attached to the drum.

Ques.—How shall the tops of shafts be guarded and when shall the tops of slopes be guarded; what must be done on each lift?

Ans.—The top of each shaft and of each slope, if dangerous (Sec. 6), and any intermediate lift shall be securely fenced off by railing or by vertical or flat gates, and (Sec. 7) every abandoned slope, shaft, and drift shall be properly fenced around or across its entrance.

Ques.—When a shaft or a slope has been idle for some time what must be done before men are permitted to be hoisted or lowered into the mine?

Ans.—Art. 14, Sec. 2, requires notice to be sent to the district mine inspector whenever work is to be recommenced in a mine that has been standing idle for a period exceeding three months. It will also be necessary to have the mine thoroughly examined by competent firebosses and safety inspectors to see that the working places, travelingways, roads and air-courses are in proper condition and the mine safe for work. The examination must also be made of all hoisting and safety equipment.

Ques.—(a) What are the requirements of the mine law in regard to charging holes in coal and rock, for blasting: (b) When a charge misses fire? (c) What duty must the miner perform before and after firing the shot?

Ans.—Art. 12, General Rules, provides as follows:

(a) Rule 30 requires that no iron or steel-pointed needle shall be used in charging holes for blasting in slate or rock, in any mine; and no tight cartridge shall be rammed into a hole in coal, slate or rock, with an iron or steel tamping bar, unless the bar is tipped with at least 6 in. of copper or other soft metal.

(b) Rule 31 provides that when a charge in slate or rock misses fire, it shall not be withdrawn or the hole opened.

(c) Rule 33 requires that a workman about to fire a blast shall give a sufficient alarm and notify all persons in danger from the blast he is about to fire. The alarm must be given before and after lighting the match.

Also, Rule 34 requires a miner, before commencing work and after firing a blast, to enter his place and examine its condition before permitting his laborer or assistant to enter.

Ques.—(a) What are the provisions of the law for removing bodies of gas? (b) What is the duty of a workman when gas is ignited in his working place?

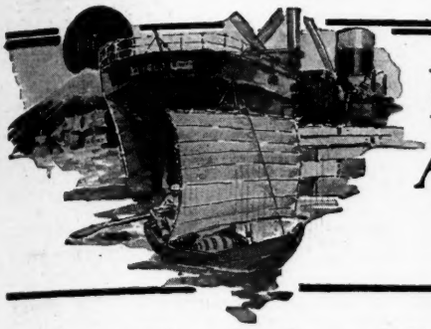
Ans.—(a) An accumulation of gas (Rule 37) shall not be removed by brushing, where it is practicable to remove it by erecting a brattice.

(b) When a person has ignited a gas feeder, by a blast or otherwise (Rule 38), he shall extinguish it immediately if that is possible, and then notify the mine foreman or his assistant. The rule also provides that workmen must see that no gas blowers are left burning when leaving their working places.

Ques.—(a) Who shall have charge of the mine ventilation, and what is the minimum quantity of air he must furnish for each person employed in the mine? (b) How often must the air be measured and to whom must reports be sent?

Ans.—(a) The mine foreman shall have charge of all matters pertaining to ventilation (Art. 12, Rule 3), and the speed of the ventilator shall be particularly under his charge and direction. The minimum quantity of air (Art. 10, Sec. 3) shall not be less than 200 cu.ft. per min. for each and every person employed in the mine, and as much more as the circumstances may require.

(b) The quantity of air in circulation must be measused by the inside foreman or his assistant once every week, at the inlet and outlet airways and at or near the face of each gangway and at the cross-headings nearest to the faces of the inside and outside chambers where men are employed (Sec. 15). A report of these measurements must be sent to the mine inspector before the twelfth day of each month, for the preceding month, together with a statement of the number of persons employed in each district. (Sec. 16.)



FOREIGN MARKETS AND EXPORT NEWS

EDITED BY ALEX MOSS

The Chilean Market for Fuel

Changes Brought About by War and Increased Interest of American Capital in Chile Result in a Larger Demand for United States Coal

Since the opening of the Panama Canal has made the west coast of South America so much more accessible, these markets have attained a keener interest for American exporters. The Chilean market for fuel, in particular, has assumed a new importance. Before the war Great Britain dominated the import coal trade of Chile, one of the reasons being that England was the largest purchaser of Chilean nitrate, and boats going out from Liverpool to the ports of northern Chile for nitrate were willing to take cargoes of coal at such low rates that competition by American coal exporters was impossible.

Before the war little American coal had been introduced into the Chilean market, but during the war Chile turned to the United States to supply the fuel which could not be obtained from England. American coal and oil were successfully substituted for British coal, and a demand was established. In the future the advantage afforded by the Panama Canal route should enable American exporters to obtain freight rates on coal sufficiently low to compete with those from Liverpool. The large increase in the amount of American capital invested in Chilean copper, iron, and nitrate will tend, under equal competitive conditions, to increase the demand for American fuel and to augment the amount of shipping between Chile and the eastern ports of the United States, which will in turn also tend to lower freight rates.

Import Trade During the War

Pre-war figures prove that under normal conditions Chile affords the most important fuel market on the west coast of South America. During 1913, the last year before coal exports from Europe were restricted, Chile's consumption of coal was more than 2,800,000 metric tons, about 55 per cent. of which was imported. Great Britain supplied about three-fifths of this amount; the Australian trade was increasing in volume; the United States supplied only a small portion of the total. The period of the war was characterized by a decrease in total coal imports and by a shifting of the chief source of supply from Great Britain to the United States. The 1914 imports were only affected to a slight degree, but during each of the years of 1915, 1916 and 1917 the imports of coal into Chile were less than one-third of the imports of 1913. During these years also the imports from the United States increased, whereas those from Great Britain were so greatly curtailed that by 1917 the relative positions of the two countries had been reversed, and the United States was supplying more than 60 per cent. of the total imports.

Crude petroleum, the use of which dates from the comparatively recent introduction of the Diesel engine into the nitrate and mining districts, was imported principally from the United States before the war. During the normal year of 1913, the consumption amounted to approximately 400,000 metric tons, all of which was imported, but during the war oil was substituted for coal wherever possible, and consequently imports increased until in 1917 they amounted to more than 750,000 metric tons. The United States remained the chief source of supply until that time when petroleum was sent from Mexico rather than the United States because of shipping restrictions.

Only a small amount of coke was imported into Chile prior to the war, but these imports increased until in 1916 and 1917 they totaled more than twice those of 1913. The source of supply of imported coke also shifted during the war; in 1913 more coke was imported from Germany than from any other country, whereas in 1917 the United States supplied more than two-thirds of the amount imported.

The following table shows the chief countries of origin of the imports of coal, coke, and crude petroleum into Chile for the years 1913, 1914, 1915, 1916 and 1917:

Commodities and Countries of Origin	1913 Metric Tons	1914 Metric Tons	1915 Metric Tons	1916 Metric Tons	1917 Metric Tons
Coal:					
England	924,430	527,576	201,718	163,533	72,306
Australia	457,873	516,889	155,541	74,416	45,443
United States	98,979	143,404	51,375	165,437	288,424
All other	59,465	69,690	2,683	4,322	494
Total	1,540,747	1,257,559	411,317	407,708	406,667
Coke:					
Germany	23,746	20,031	25	.....	.....
England	13,207	9,588	27,994	54,492	25,480
United States	1,000	1,885	20,172	57,519	72,696
All other	8,384	15,407	1,960	165	21
Total	46,337	46,911	50,151	112,176	98,197
Petroleum, crude:					
United States	319,671	374,008	241,101	587,758	282,157
Peru	82,644	135,852	73,403	113,491	52,863
Mexico	.....	.....	24,356	54,022	422,842
All other	35	.....	206	8	3,051
Total	402,350	509,860	339,066	755,279	760,913

Fuel Imports, by Ports of Entry

The handling and storage facilities of the port of destination are items of importance to the coal or oil exporter. In considering the Chilean market it must be remembered that practically all its ports are open and unprotected with facilities for handling only about 300 or 400 tons of coal per day and that storage facilities are limited. A few of the ports have oil-storage tanks and the necessary equipment for discharging oil from tankers anchored in the harbor directly into these tanks. The agents for a California oil company have oil-storage tanks at Taltal, Antofagasta, Tocopilla, Iquique and Valparaiso.

About three-fourths of the coal and two-thirds of the oil imported into Chile enter through two northern ports, Iquique and Antofagasta. Iquique is primarily an outlet for the nitrate fields of Tarapaca, with which it is connected by the Nitrate Railways. Antofagasta serves as an outlet for nitrate and copper districts and for exports from Bolivia, which are carried down to Antofagasta by the Antofagasta & Bolivia Ry. Valparaiso, the outlet for the industrial and agricultural section of central Chile, ranks third in imports of coal and first in imports of coke. Pisagua, Tocopilla and Taltal, nitrate ports of the north, import large quantities of coal and oil. Caldera and Coquimbo are primarily mineral ports and import coke.

Fuel Produced in Chile

South America is notably lacking in fuel resources. Chile has been the most important coal-producing country of the continent for many years, but the native product is very soft and is said to be about 20 per cent. inferior to good British, Australian or American coal. All the coal mined except that coming from the Penco deposits produces a compact coke which, however, is not serviceable for metallurgical purposes.

Petroleum, water power, natural gas and firewood may be used as substitutes for coal. Chile is peculiarly fortunate in its possession of one of these substitutes, namely, its waterfalls, which, however, have not been utilized to any great extent up to the present time but will undoubtedly become an important source of hydroelectric power in the near future. Chile is not so well supplied with other substitutes. There have been numerous reports of petroleum but no oil is being produced. According to a Government report, forests cover more than one-fifth of the republic's total area, but much of this forest land is as yet wholly inaccessible and consequently firewood is not used in Chile as extensively as in Brazil or Argentina.

Despite the fact that importation of coal into Chile was cut to about one-third of the normal amount during the war, it was found impossible to increase native production because of inadequate transportation facilities. The following table shows the number of coal mines in operation during the period 1913-1916, the number of employees, and the gross production, which represents the total output of the mines, for the successive years of the period:

Years	Number of Mines	Number of Employees	Gross Production Metric Tons
1913	17	8,414	1,283,450
1914	17	8,105	1,086,946
1915	17	8,160	1,171,564
1916	15	9,252	1,418,119

Description of Coal Fields

The Chilean coal fields extend along or near the coast from 36 deg. south latitude into the Magellanic lands, the most important mines being at Coronel, Lota, Curanilahue and Lebu. In addition to these more important deposits, small fields, known as the Penco deposits, occur north of the Bay of Arauco in the bays of Coluimo and Talcahuano. There are also mines near Punta Arenas producing an inferior grade of lignite.

The mines at Coronel and Lota are owned by the Schwager Coal Co. and the Lota and Coronel Co., both Chilean concerns. These mines have workings below the sea in horizontal veins 1200 to 1400 meters from shore, which a Government engineer claims will be difficult to exploit beyond 1.86 miles. Notwithstanding this limitation, the quantity of coal in sight for the future in these mines is estimated to be not less than 39,600,000 tons. The mines at Curanilahue are owned by the Compañía de los Rios de Curanilahue, a Chilean company, and the Compañía de

Arauco (Ltda.), a British concern. This field is reported to be the most extensive one in the Republic, but has not been fully developed because of the lack of adequate transportation facilities. The reserve is calculated to be 120,000,000 tons. At present, the only outlet for the coal from these mines is afforded by the railway operated by the Compañia de Arauco, which runs north from the mines to Coronel, Lota and Concepcion. The principal mines in the Penco district are the Cerro Verde, the Lirquen and the Rosal. The coals of this district differ from the others of Chile in that they are more friable and produce pulverulent coke. The mines at the mouth of the Lebu River are said to be the oldest in Chile, but they have been difficult to develop because of the poor condition of the port of Lebu. These mines are the Errazuria, owned by the Compañia Curanilahue, and the Millaneco, now closed, and others belonging to the Compañia Victoria de Lebu.

In the following table givingthe imports of coal, coke, and oil by ports for 1917, the ports are listed in geographical order from north to south. The table shows the relatively large per cent. of the total fuel imports received by the northern ports of the Republic.

Ports of Entry	Coal Metric Tons	Coke Metric Tons	Petroleum Metric Tons
Pisagua	13,248	.....	52,389
Iquique	159,131	848	213,852
Tocopilla	16,890	10,173	130,897
Antofagasta	169,311	4,945	282,677
Taltal	17,594	14	59,451
Caldera	851	17,442	3
Coquimbo	5,386	15,933	.....
Valparaiso	18,305	48,063	17,832
All other	5,951	779	3,812
Total	406,667	98,197	760,913

According to the *West Coast Leader*, the profits of the two largest coal-mining companies have increased materially since the beginning of the war. In 1914 the balance sheet of the Lota and Coronel Co. showed profits of 23.4 per cent. and that of the Schwager Co. showed profits of 28.75 per cent. In 1917 their profits had increased to 56½ and 50 per cent. respectively.

The following table, taken from the Statistical Abstract of Chile for 1917, gives the names of the coal mines registered in the country, the owner of each mine, its location and the gross production for the year 1916.

Name of Mine	Owner	Location	Gross Metric Tons Production
Lirquen	Cia. Carbonifera de Lirquen	Penco	50,000
El Rosal	Cia. Minera de El Rosal	Penco	7,000
Lota	Cia. de Lota y Coronel	Lota	430,000
Buen Retiro	Cia. de Lota y Coronel	Coronel	43,752
Coronel	Cia. de Lota y Coronel	Coronel	11,269
Playa Negra	Cia. de Lota y Coronel	Coronel	12,186
Schwager	Cia. Carbonifera y de Fundicion Schwager	Coronel	385,124
Chiflon y Nivel	Cia. Carbonifera Los Rios de Curanilahue	Curanilahue	181,158
Victoria	Cia. Carbonifera Victoria de Lebu	Lebu	12,000
Colico	Cia. de Arauco (Ltda.)	Carampangue	36,589
Curanilahue	Cia. de Arauco (Ltda.)	Curanilahue	163,376
Amalia	Cia. Carbonifera Los Rios de Curanilahue	Lebu	46,000
Isabel	Sociedad Carbonifera de Mafil	San Jose de Marquinia	5,640
Porvenir	Comunidad Minas de Carbon Porvenir	Lebu	11,200
Loreto	Menendez, Behety y Cia	Punta Arenas	22,600

Fuel Consumption—Nitrate Companies Principal Consumers

The nitrate and mining companies and the railways are the principal fuel consumers in Chile. Professor Gonzalez estimates the amounts of coal normally consumed in various industries to be as follows:

	Metric Tons
Nitrate plants (including railways)	800,000
Railways	500,000
Shipping	450,000
Mining and metallurgy	150,000
Gas manufacture	150,000
Other industries	350,000
Domestic and other uses	100,000
Total	2,500,000

Nitrate is the most important export product of Chile and the nitrate companies are the largest fuel consumers of the country. The nitrate district lies in two of the Northern states, Tarapaca and Antofagasta, and the coal fields of Arauco and Concepcion are in the south. Since little nitrate is shipped to southern Chile, boats carrying coal to the nitrate district find trouble in obtaining a return cargo, and consequently freight rates are high. There is a ready market for the native coal in the industrial section of the central part of the republic, hence it is seldom sent to the northern markets. Within the last 15 years oil-burning Diesel engines have been installed and are now used almost exclusively by the larger nitrate companies for the production of power and electricity for lighting. During the war the use of fuel oil has increased so materially, both in the oficinas and on the nitrate railways, that certain Chilean newspapers have become alarmed at the degree to which the principal industry of the country has become dependent on imported liquid fuel.

The Chilean railways rank next in importance to the nitrate plants as fuel consumers. Whereas in Argentina the more important railways are controlled by foreign capital, in Chile, over 4500 kilometers of the total railway mileage in operation are under Government control, and less than 4000 kilometers are operated by private companies. The most important privately operated railroads, considered in respect to length and tonnage of cargo handled, are the Antofagasta & Bolivia and the Nitrate Railways, both of which lines are owned by English companies. The Nitrate Railways are not, as the name might seem to indicate, the property of any single nitrate-producing company, but are owned by the Nitrate Railways Co., and serve to carry the output of several companies to the ports of Iquique and Pisagua. In 1912 and 1913 over half the coal burned by the State Railways was imported; in 1915, 330,960 metric tons were used, all of native production. Even in normal times the Chilean Government usually expressed a preference for native coal. Before the war the foreign coal used by the State Railways is said to have come largely from Australia.

In spite of the longitudinal railroad, much of the traffic north and south goes by water rather than by land. According to Chilean statistics, 2678 steamships with a total registered tonnage of 6,262,698 entered all Chilean ports from foreign ports in 1917. During the same year the figures for coastwise vessels were 10,601 steamers with a registered tonnaged of 7,737,210. Coronel is the chief bunkering port of Chile. It has good anchorage for vessels in 6 to 12 fathoms, and cargo may be discharged into lighters of 20 to 50 tons. Near Coronel are Lota, a smaller coaling station, and Talcahuana, a naval base. The inferior coal found near Punta Arenas has been used to some extent for bunkering purposes, but has proved rather unsuccessful.

Power Used by Various Industries

The mining district of Chile is immediately south of the nitrate fields. Copper is the most important product, the greater part being mined by large companies controlled by American capital such as the Braden Copper Co., the Chile Exploration Co., the Santiago Mining Co. and the Andes Copper Mining Co. Among the mineral resources of this region, iron should also be mentioned. The Bethlehem-Chile Iron Mines Co. has recently purchased extensive holdings in Chile and has installed the most modern equipment for extracting and shipping the ore in large quantities.

The fuel to be used is necessarily one of the first problems to be solved in connection with the development of either copper or iron-ore holdings. The Braden Copper Co. owns one of the two hydroelectric plants now in operation in Chile and is building a second plant. It depends entirely upon the electric power generated by this plant. The Chile Exploration Co. has a power plant at Tocopilla, where electric power is manufactured for use at its reducing plant and for lighting and power at the mine. In order to insure an adequate supply of fuel for these boilers which are oil-fired, the company has built two oil-storage tanks, each with a capacity of 55,000 barrels. The Santiago Mining Co. has only recently purchased its property and expects to install a hydroelectric power plant. The Andes Copper Mining Co. has not yet completed its smelting plant; its power plant will be located at Chanaral. The Bethlehem-Chile Iron Mines Co. has planned to use electric power in all operations from the mining to the final loading of the ore. The boilers to be used in generating this electricity are specially constructed so that they may use either oil or coal.

Chile has made more progress in manufacturing than any other west coast country of South America. According to figures compiled in 1913 by the Chilean census, the value of the production of all manufacturing industries for the year was $130,000,000 United States currency. This figure includes such industries as the manufacture of gas and electricity, alcohol and drinks, foodstuffs, ship construction, chemicals and drugs, as well as the strictly manufacturing industries. Santiago is the chief industrial center of the republic. Steam, electricity, and some gas, oil and hydraulic power are employed in the factories. Native coal has been used almost exclusively since the beginning of the war for the manufacture of gas, but prior to that time Australian coal was used to a large extent. The Chilean Electric Tramway and Light Co., of Santiago, owns a hydroelectric power plant.

Measures Suggested to Increase Production

Notwithstanding the difficulty of increasing the coal production of the country without improved railway and port facilities for its handling, the Chilean Government has given no assistance to the development of the coal resources. The recent coal shortage and the attendant high prices resulted in a popular demand for more native fuel and an investigation by the High Commission, which recently made certain recommendations to the Government with a view to aiding the opening up of coal fields in the eastern part of the Province of Arauco. These recommendations include a geological survey of the region; the purchase and completion of the railway from Lebu to Los Sauces; the completion of the extension from Traiguen to Pua, and the construction of a further extension from Curacautin across the Andes; the survey and construction of port works at Lebu; and the survey and construction of a railway from Curanilahue to Los Alamos. The railway from Lebu to Los Sauces was begun by an English company, the Chilean Eastern Central Ry., which was unable to complete its construction because of lack of funds and is said to wish to sell out. The short branch which is recommended from Curanilahue to Los Alamos will connect the mines at that point with the port of Lebu. The construction of the short stretch from Traiguen to Pua, a station on the longitudinal railway, will connect the port of Lebu with the longitudinal railway. From Pua a short stretch is already in operation east to Curacautin, from which point the proposed route across the Andes to Zapala, Patagonia, is said to be much better than the present transandine route. At Zapala connection could be made with the Great Southern of Argentina for Bahia Blanca. The recommendation urges the opening up of these railways, because they will make possible the development of the adjacent coal deposits and will also enlarge the market for the product, since coal could then be shipped across the Andes for the use of the Argentine railways and in return cattle and grain might be shipped into Chile.

Increased Cost of Fuel

The increased cost of production, scarcity of coal in England and the United States, and shortage of shipping space all combined to increase the price of imported coal in Chile. As the shortage of imported coal was not relieved by added production at the Chilean mines, the Chilean companies succeeded in increasing the price of their product proportionately to the increase in the imported coal. Before the war the price of Chilean coal had been just below that of imported coal. During the war, although there was no official combination of local mining companies, there was apparently an understanding based largely on the knowledge of terms at which rival producers would be willing to make coal contracts, and by means of this understanding the dealers were enabled to raise their prices until they approximated but did not quite equal the prices of imported coal.

Not only coal, but coal substitutes were scarce and high during the war. In the case of oil, which had been introduced into the nitrate fields because of certain advantages which it possessed over coal, a serious disadvantage, namely, the extra shipping space required, became more apparent during the war. Coal boats could return with cargoes of nitrate; oil tankers are of special construction and must return empty.

Rise in Fuel Prices

The following coal and oil quotations illustrate briefly the rapid rise in prices of fuel since 1914. At the beginning of the war Welsh coal was selling at the northern ports of Chile for about $8.51 per ton United States currency, English for $7.78, and Australian for $7.30. During the first months of the war the slump in the nitrate trade reduced the demand for coal, but by the beginning of 1915 the market had recovered and since that time there has been a serious coal shortage. The State Railways curtailed service and are reported to have used some wood for fuel. The Government attempted to relieve the shortage in the northern district, by allowing the use of naval transports for the carrying of coal north from Coronel and Lota. In December, 1915, Welsh and English coal was not quoted in the northern ports at all, Australian was selling for $10.95, United States for $11.68, and Chilean for $7.54. The closing of the Panama Canal in the latter part of 1915 practically cut off American shipments, and by the end of 1915 American coal as well as British was temporarily out of the market. In the early part of 1916 coal prices reached their maximum. Later during that year prices fell because of increased cargo space offered by the boats sent down from the United States to load nitrate. In January, 1917, current prices ranged from $15.80 to $17 for Australian, $13.38 to $14.58 for United States, and $12.15 to $14.58 for Chilean. According to *El Mercuria*, a Chilean newspaper, native coal was offered at $17 58 to $20 35 United States currency on March 30, 1919, and American from $18 50 to $19 43. Australian and British coals were not quoted. In February, 1919, Australian coal had sold for $18.75 per ton.

Before the war, petroleum importers fixed their price at 40 shillings ($9.73) per English ton while coal sold for about 35 shillings ($8 52). Immediately after the United States entered the war in 1917, oil prices began to soar. Despite contracts, imports were reduced 25 per cent. in volume and prices in the latter part of 1917 and the first half of 1918 reached 120 to 150 shillings ($29 16 to $36 45). An article in the London *Statist* for November 9, 1918, states that the nitrate companies calculated the cost of coal at their oficinas to be £6 ($29 19) per ton and petroleum to be £7 10s. ($26.50) per ton.

Will Frame Bylaws for Export Association

A meeting was held at the Machinery Club, New York City, on Thursday, Sept. 11, 12:30 p. m., at which it was decided to prepare bylaws for the conduct of an export association to deal in coal in foreign countries under the Webb-Pomerene Act. This meeting was called by the Coal Export Committee of the American Mining Congress, of which Henry M. Payne is chairman. James S. Callbreath, secretary of the American Mining Congress, presided.

Nothing was done by the Coal Export Committee so long as the National Coal Association continued actively to canvass the situation. It now being understood that the National Coal Association considers itself unlikely to consummate a plan that will be satisfactory to all its members, it seems to the American Mining Congress Export Committee that it is incumbent on it to take up the matter where it has been dropped. The Congress, while anxious in every way to assist this industry in forming an export association, has been little disposed to do anything so long as it appeared possible that the National Coal Association would form a definite working plan.

Feeling that mere discussion would arrive at no final issue, the committee decided to leave the matter in the hands of Allen Walker, of the Guaranty Trust Co., and Gilbert H. Montague, an attorney, instructing them to frame a suggestion on which an association in which large and small producers could participate to equal advantage might be formed, their stock, voting power and allotment of orders to be in proportion to output; care, however, being taken to give those corporations that had already entered into the foreign trade, and so established some degree of prior right, extra consideration with those companies with which they had already done business.

When this document is prepared it will be submitted to the full committee, and later it is intended to present the whole matter to a meeting of possible members of the association with a view to criticism and amendments. The question of standardization will probably be taken up at the same time, the Bureau of Mines participating, and every effort will be made to put the association on a basis which will be satisfactory to the Federal Trade Commission and to the exporters themselves, be they large or small. It is hoped that by avoiding in every way any exploitation of foreign customers and providing them with a product in every way in accord with specifications, a large trade may be built up based firmly on business integrity.

Those present at the meeting were James F. Callbreath, Dr. Henry M. Payne, Allen Walker, Gilbert H. Montague, George M. Dexter, National Wholesale Coal Association; Charles S. Allen, secretary, Wholesale Coal Association of New York; George S. Rice, chief mining engineer, United States Bureau of Mines, and R. Dawson Hall, managing editor, *Coal Age*.

H. Y. Saint, head of the Department of Coal Exports, United States Shipping Board, and John Callahan, traffic manager of the National Coal Association, wrote regretting their inability to be present.

Exports of Coal and Coke During July, 1919

The domestic exports of coal and coke from the United States by countries and by customs districts, and the bunker coal supplied to vessels in the foreign trade at specified districts, during the month of July, 1919, are given as follows by the bureau of Foreign and Domestic Commerce:

Countries	Coal: Anthracite, Tons	Coal: Bituminous, Tons	Coke, Tons
Denmark	.....	7,695	.....
France	.....	29 748	.....
Gibraltar	.....	5,953	.....
Italy	.....	167 559	.....
Netherlands	.....	77,812	.....
Norway	.....	32,887	138
Sweden	.....	23,494	.....
Switzerland	.....	96,866	.....
Bermuda	.....	2,762	.....
British Honduras	.....	50	.....
Canada	484,240	1 338 108	28,941
Guatemala	.....	108	8
Honduras	.....	569	6
Nicaragua	.....	178	.....
Panama	.....	.....	78
Mexico	205	5,824	6,741
Miquelon Langley, etc.	20	.....	.....
Barbados	35	11,833	.....
Jamaica	.....	4,695	.....
Cuba	2,659	75,085	20
Dutch West Indies	.....	3,027	.....
French West Indies	.....	1,300	.....
Dominican Republic	.....	820	.....
Argentina	.....	28,712	221
Brazil	294	54 595	.....
Colombia	200	8,029	.....
Ecuador	.....	2,948	25
Falkland Islands	.....	2,080	156
British Guiana	.....	1,807	.....
Peru	.....	2,629	1,369
Uruguay	.....	7,775	.....
Venezuela	.....	240	.....
Dutch East Indies	.....	6,193	.....
Russia in Asia	.....	3	.....
New Zealand	.....	13,933	.....
French Africa	.....	6,723	.....
Italian Africa	.....	5,166	.....
Total	487,653	2,027,206	37,703

Districts	Coal: Anthracite, Tons	Coal: Bituminous, Tons	Coke, Tons
Maine and New Hampshire	219	3,690	17
Vermont	2 264	10,314	217
Massachusetts	20	.....	.....
St. Lawrence	161,229	192,117	4,488
Rochester	91,383	70,306	.....
Buffalo	218,657	168,869	16,192
New York	4,983	2,847	283
Philadelphia	2,659	90,032	.....
Maryland	.....	232,927	1,269
Virginia	.....	340,323	377
South Carolina	.....	9,455	.....
Georgia	.....	3,451	.....
Florida	.....	3,331	.....
New Orleans	.....	915	92
San Antonio	201	493	627
El Paso	.....	2,648	756
Arizona	.....	2,670	5,378
Southern California	4	2	.....
San Francisco	.....	1	.....
Oregon	1	2	.....
Washington	39	94	54
Alaska	.....	3	.....
Dakota	1,247	2,083	194
Duluth and Superior	543	3,984	49
Michigan	117	61,436	5,898
Ohio	4,087	825,213	1,832
Total	487,653	2,027,206	37,703

BUNKER COAL

Districts:	Tons
Maryland	43,535
New York	290,013
Philadelphia	43,821
Virginia	144,832

The Coal Outlook in England

(From Our British Correspondent)

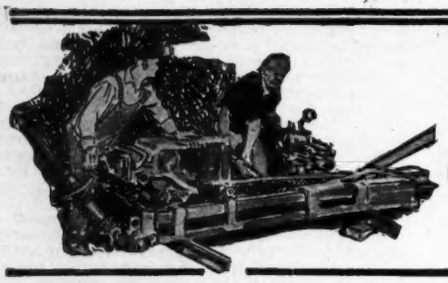
The question of the hour seems to be, Will the miner be magnanimous enough to provide us with the fuel we require for domestic and industrial purposes? For a long time past coal trade interests in the Metropolitan area and in the southern counties of England have been hampered exceedingly by the stringency of supply, especially as regards fuel for specific needs. Districts contingent to the coal fields may have fared better, but those at a distance have suffered from a shortage which, at times, has been exraordinary. Owners of private mine cars might have been expected to have the advantage as compared with others who are entirely dependent upon colliery and railway mine cars, but private cars have been ruthlessly commandeered, seriously delayed; indeed in some cases, some of the cars cannot at presen' be traced. Moreover, the system of distribution under the Controller has from time to time resulted in a certain amount of confusion and scarcity.

The distribution, to say the least of it, is uneven in point of quantity, and fuel has been allocated for purposes for which it was altogether unsuitable. Coal suitable for heating the baker's oven has gone for ordinary steam purposes, and hard steam coals have been assigned for domestic use. Emergency supplies have figured to a certain extent, but they do not appear to have given much effective or tangible relief to the trade, and the struggle still goes on, as it is absolutely necessary that at this time of the year merchants, dealers, railway companies and industrial concerns should accumulate a reserve in order to meet the exigencies of the winter movement. It is true that of late industrial fuel has been more plentiful owing to the suspension of exports from the Humber, but it is obvious that this can only afford temporary relief inasmuch as in the long run we must sell coal to the foreigner because we sorely need the money he pays for it.

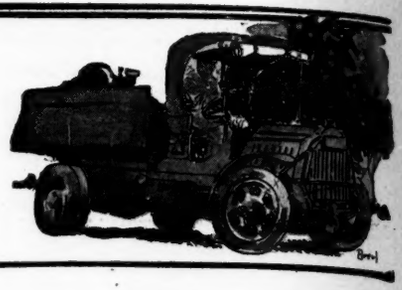
To crown all these troubles of the trade there comes the official announcement that the estimated reduction in the output of coal due to the reduction of working hours is 10 per cent., and that a further modification in the amount for household consumption will have to be made to meet the shortage, or it will be necessary to limit more strictly than at present the quantity allowed for export. In relation to the last-named point, the Coal Controller told a deputation of the Humber exporters and shippers that the lack of export coal was due entirely to the diminished output of the mines. His statement represents the crux of the whole matter, and it is in many ways confirmed by the evidence forthcoming at the Coal Commission day by day. The fact most patent is that with more miners in the pit the production is not increasing, but diminishing, and the trade and the country would like to know what it means, as the answer would certainly be interesting.

The reduction in the working hours of Belgian coal miners that came into force on June 1 has already resulted in a marked diminution of output, and this is delaying any prospect of a reduction in prices. The existing restrictions on export are also being criticized.

The average yearly output of coal mines in Bulgaria before the war was about 2,000,000 tons. This might have been considerably increased with better transport and organization. During the war the output of the Pernik mines alone was raised in 1916 to about 600,000 tons (50,000 tons per month) by the employment of large numbers of Serbian prisoners.



COAL AND COKE NEWS



What Happened in August

[The bracketed figures in the text refer to the number and page of the volume in which references to the matter noted may be found and should the reader desire further information he can obtain it in the place indicated.]

Aug. 1—The employees of the Locust Gap mine of the Philadelphia & Reading Coal and Iron Co. return to work [XVI, 283]—The Belleville, Ill., miners strike to recover fine previously levied [XVI, 284]—First commercial coal hoisted at big new mine of Bell & Zoller Mining Co., at Zeigler, Ill. [XVI, 343]—A wage increase is announced in the Pocahontas field of West Virginia [XVI, 284]—The eight-hour day goes into effect in the Pocahontas field [XVI, 284]—The operators of the Tug River field meet in Bluefield, W. Va., and adjust their scale of wages to that of Pocahontas field [XVI, 284].

Aug. 3—Seven local unions of United Mine Workers of America meet at Wilkes-Barre, Penn. [XVI, 372].

Aug. 4—President Keeney finishes conference with operators at Buckhannon and Adrian, W. Va., a new contract being signed by all but one company [XVI, 284].

Aug. 5—Sheriff J. W. Osborne, of Belmont County, Ohio, takes action at the Fort Pitt mine of the Central Coal Co., which permits the men to return to work [XVI, 383].

Aug. 6—A recount of the vote cast at a recent election of the No. 1 District of the United Mine Workers, at Scranton, Penn., starts under the supervision of Judge E. C. Newcomb, of the Lackawanna County Court [XVI, 283]—After this date production of coal is entirely suspended at mines on Chesapeake & Ohio R.R. pending settlement of shopmen strike on the railroad [XVI, 293]—Celebration is held by miners from Paint Creek, Cabin Creek and Coal River, in West Virginia on occasion of the sixth anniversary of the organization of these fields by United Mine Workers [XVI, 330].

Aug. 7—An explosion occurs at the Weirwood mine of the New River & Pocahontas Consolidated Coal Co., in Fayette County, W. Va., in which seven men are killed [XVI, 294].

Aug. 8—The policy committee of the United Mine Workers reports it has prepared recommendations to be presented to the convention of the union in Cleveland, Ohio, in September [XVI, 283]—Executive committee of Bituminous Mine Inspectors' Association of Pennsylvania holds meeting at Harrisburg, Penn. [XVI, 342].

Aug. 10—John Brophy, president of United Mine Workers' District No. 2 wires President Wilson about labor situation in connection with Cambria Steel Co. [XVI, 329]—The second annual first-aid contest of the Pond Creek Coal Co. is held at Stone, Ky. [XVI, 445].

Aug. 12—The U. S. War Labor Board meets at New York City and formally ends its existence—The Yorkshire Miners' Council of England recommends a return to work, which is accepted by all but the men in the West Yorkshire section [XVI, 331]—Mine cave in West Scranton buries boy causing his death. Public action is taken in the matter [XVI, 340].

Aug. 13—Convention of United Mine Workers' District No. 12, is held at Belleville, Ill. [XVI, 331]—The Yorkshire miners in England vote to return to work. These 200,000 miners held out after the majority of the mine employees of Great Britain had returned to work on July 25.

Aug. 14-15—Shopmen of C. & O. return to work making it possible for mines to resume operation [XVI, 341]—Walker D. Hines sends letter to Vice President Marshall touching on congressional inquiry into coal situation [XVI, 267]—The Williamson, or Thacker, non-union field decides to advance wages and shorten hours to eight per day [XVI, 372].

Aug. 18—An explosion occurs in the Oakview mine of the Oakdale Coal Co., in Colorado, in which 18 men are killed [XVI, 385]—The C. & O. moves empties to mines in its territory following resumption of work by shopmen [XVI, 383].

Aug. 19—Districts Nos. 1, 7 and 9, United Mine Workers, meet at Wilkes-Barre, Penn. [XVI, 372].

Aug. 20—Committee of Guyan, W. Va., operators appeals to manager of Eastern Car Pool for better car supply [XVI, 383].

Aug. 21—Employees at Plymouth district of Hudson Coal Co., Pennsylvania anthracite field, go on strike [XVI, 414]—The operators' association of the Williamson, W. Va., field meet to discuss wage situation [XVI, 455].

Aug. 22—The scale committee makes its report to the convention of United Mine Workers' District Nos. 1, 7 and 9, at Wilkes-Barre, Penn. [XVI, 412].

Aug. 25—President Wilson issues statement referring to threatened strike of railway shopmen [XVI, 431].

Aug. 26—Director General of Railroads Walker D. Hines issues statement (supplementing his statement of Aug. 14) concerning the coal car supply [XVI, 443]—Tenth annual first-aid contest of Susquehanna Collieries Co.—Wyoming Division—is held at Nanticoke, Penn. [XVI, 446]—J. D. A. Morrow gives important testimony before Senate committee conducting inquiry into the coal situation [XVI, 366]—A riot occurs at the Breckenridge mine of the Allegheny Steel Co. in western Pennsylvania [XVI, 414]—Walter Nesbit, of Illinois United Mine Workers, issues ultimatum to striking locals to return to work or be expelled [XVI, 414].

Aug. 29—Some 1500 men of the Powderly and No. 1 collieries in Carbondale, Penn., and 800 men of the Jermyn colliery go out on strike [XVI, 455].

Aug. 30—Fire destroys surface plant of Springside mine of Smith-Lohr Coal Mining Co., Pana, Ill. [XVI, 468].

New York, N. Y.

Electricity displacing steam at mines. Prominent electrical engineer's comments on advantages of electrical power on transportation lines and at industrial plants. One million dollars daily going to waste by use of steam rather than electricity in anthracite territory.

Some of the big anthracite coal mining companies are more or less committed to a policy of electricity; prominent among these are the Lehigh Coal and Navigation Co., and the Coal Department of the Delaware, Lackawanna & Western R.R. Quite recently the Susquehanna Collieries Co. announced its intention to expend a large sum in electrifying some of its plants in the Lykens Valley field, stating that the company expected by this change of steam to electric power, to turn the balance of operating account from loss to profit at such plants.

In this connection an address of W. S. Murray, electrical engineer, before the Bridgeport Chamber of Commerce, has considerable interest. His topic was, "One Way to Maintain Industrial Supremacy." He warned manufacturers that anthracite coal in the ground is limited and claimed that $1,000,000 daily is going to waste through improper means of providing power and suggesting complete electrification of transmission lines along the northern seaboard. Mr. Murray was the engineer in charge of the electrification of the New Haven railroad system, and not only enlarged on the practical working out of the plan on the New Haven but also other lines which use this form of power.

What is said about railroads may be said about industrial plants, related Mr. Murray, that where there is a clear saving of coal to railroads of four to one ratio, the saving between electric and steam drive in plants is as high as ten to one, with greatly reduced cost of maintaining electric vs. steam equipment. In the territory between Washington and Boston, extending inland 100 miles, there is a demand for 17,000,000 hp. Of this railroads require 7,000,000, and industrial plants the remainder. The anthracite mining companies are interested in cheaper power costs at the collieries, at industrial plants and on transportation lines as well.

Philadelphia, Penn.

Anthracite "independent operators" to bring suit in Federal Court of Claims. Made no profit under Fuel Administration prices. Test suit important to large number of both anthracite and bituminous operators. Interesting statement made by Dr. Garfield. If test suit is successful other suits probably will follow.

Certain independent anthracite operators of Pennsylvania—those companies other than the "railroad coal companies"—sustained such severe losses, so they assert, during the regime of the United States Fuel Administration that they will shortly begin in the Federal Court of Claims a test suit against the United States to determine (under the Lever Act) if the United States is not liable to damages.

It will be alleged that the company bringing the suit operated its mine during the entire period of the Fuel Administration control, and that (under the restriction of prices maintained by Dr. Garfield) the prices it was permitted to charge for its product were so low that it barely got back its cost of mining and preparation, thus making no profit whatever; whereas, if it had not been restricted in such a manner, it would have been able to make a just and reasonable profit.

The act of Aug. 10, 1917, in Section 25, provides: "In fixing maximum prices for producers, the commission shall allow the cost of production, including the expenses of operation, maintenance, depreciation and depletion, and shall add thereto a just and reasonable profit."

The test suit will determine the liability of the Government to a large number of coal operators, in both anthracite and bituminous fields, who, from patriotic principles, kept their plants going during the period of Federal control, although, it is said, they knew they were operating at a compulsory loss. The operators maintain that the conditions were fully known to the United States fuel administrator, but in spite of this he failed to remedy conditions.

When Dr. Garfield withdrew the maximum price and other restrictions on anthracite, as of Feb. 1, 1919, he made a statement in which he said that the cost of mining anthracite had been increased to such an extent, "that many of the companies were not receiving a fair return, and that some producers of necessary coal were actually sustaining a loss on the sale of coal at the Government prices." He also said that, "had the Fuel Administration's active control over maximum prices on anthracite coal been continued," the maximum prices would necessarily have been raised, possibly as much as fifty cents a ton."

If this test suit is successful, other suits will doubtless be brought, as many coal companies suffered severe losses, due to heavy increases in wages authorized or imposed by the Government, and to advanced costs in materials and supplies which had to be purchased at prices fixed by various governmental price-fixing boards, and then had to sell their coal at prices which did not cover these increases in expenses. The Fuel Administration declined to recognize as part of increased costs, any royalties

which were higher than an established figure set by them, and many coal operators had to pay royalties largely in excess of this sum.

The prices fixed by the Fuel Administration as permissible for the selling of coal were, in many cases, based upon the assumption that steam sizes of coal could be sold at certain schedule prices, which, as a matter of fact, were unobtainable and, thoretically, did not, therefore, yield to the operator the net returns, upon which the Fuel Administration calculated the intended revenue. The test action will be brought by Henry S. Drinker, Jr. Associated with Mr. Drinker will be William A. Glasgow, Jr., and Percy C. Madeira, Jr., of this city, and Douglass M. Moffat, representing coal companies having similar cases.

Charleston, W. Va.

Strike in Kanawha field causes loss of 75,000 tons of coal. Nearly every mine shut down for three days. Blockades at tide and the Lakes decrease car supply. Shortened production in New River field due to new wage contract in effect Sept. 1. Miners in thin seam section refuse to accept reduction in wages new scale provides.

There was general demoralization in the mining territory served by the Chesapeake & Ohio Ry. during the first week of September, except in the Logan district, because of rather widespread labor troubles, particularly in the Kanawha district. During the last three days of the week, practically every mine in the Kanawha field was shut down for a period of three days as the result of a strike in which approximately 10,000 men were involved, part of that number undertaking an armed invasion of another mining district, apparently in emulation of similar tactics in Illinois. As a result of the strike alone in the Kanawha field it is estimated that there was a loss of 75,000 tons. Miners had no cause for complaint against Kanawha operators although the loss fell on the operators of that district. While of course there was little need for cars in the Kanawha section on Sept. 4, 5 and 6, had conditions been normal, the car supply would have been entirely insufficient, not being over 55 or 60 per cent. of normal. Blockades both at tidewater and on the Lakes were having the effect of slowing up the movement of coal both to the East and West, and at the outset of the second week of September an embargo was placed on the shipment of certain kinds of coal to the Lakes. Congestion at both lake and tidewater points was also believed to be a factor in decreasing the car supply. However, the indications were that some producers would be able to load a large tonnage during the second week for export, and a strong demand was developing for steam coal in the high volatile fields. The volume of smokeless coal produced during the initial week of September was much less than that for the final week of August.

During the first week of September, owing to the three-day strike, the Kanawha district fell further behind and production was limited to two days for the entire week; possibly there was a 25 per cent. production, the total output for the week, on a generous estimate, being 50,000 tons. While there was a continuance of the car shortage in the district, the supply being under 60 per cent., yet such a shortage was obscured largely because of labor troubles. Nearly every mine in the district was shut down. When operations were resumed at the mines on Sept. 8, between 50 and 75 per cent. of the miners were at work. Many of them were too footsore and weary to go to work and consequently there was not a large production at the beginning of the second week of the month.

Differences arising in connection with the new wage contract were responsible for a shortened production in the New River field at the outset of September; a number of plants were affected and produced little or no coal during the week. The new wage contract went into effect on Sept. 1 and since such companies as the McKell Coal and Coke Co., the Red Star, the Willis Branch and other companies had declined to accept the new agreement, with its provision for a check-off and a closed shop, the union miners at such plants failed to report for work following the general Labor-Day shut down. Production was also lost because of the refusal of miners in the thin seam section of the New River field to accept the reduction in wages the new scale provided. Cars were not as plentiful as producers desired, although not so many were required owing to labor troubles. Congestion at tidewater was still hampering shippers although a number of smokeless producers expected to be in a position to export a good deal of coal during the second week upon the arrival of vessels. Despite the congestion at the Atlantic seaboard, there were no embargoes in effect except as to Pools Nos. 7 and 46. Mines on the Kanawha & Michigan were affected by a car shortage on that road, production being only about 50 per cent. of normal.

Fairmont, W. Va.

Northern West Virginia fields load more coal in first week of September than during last week of August. Transportation better. Tidewater embargoes send coal to the Lakes. New England railroads accumulating coal for winter use. Heavy coal movement to New England.

Despite the fact that the operators of the Fairmont and other northern West Virginia fields had only five days in which to produce coal in the week ended Sept. 6—no coal being produced on Labor Day—loading in the Fairmont region at least exceeded that for the last week of August, when the operators had six working days. It is estimated in fact that the number of cars loaded in the Monongah division of the Baltimore & Ohio during the first week of September, was at least 300 in excess of the loading for the last week of August, and that conditions were the same elsewhere in northern West Virginia regions. Mines in that section were also swamped with cars during the early part of the week, after having had a rather lean supply during the previous week; but the mines were equal to the task and succeeded in loading all the cars supplied. This was true to such an extent in fact that yards in places were congested, demonstrating that the mines in the northern part of the state can load the coal, if supplied with the cars in which to load it. While the supply grew short toward the latter part of the week, still no mines were shut down because of any shortage of equipment. On the Monongahela Railway the supply of cars throughout the week was at no time over 50 per cent.

Embargoes debarred much coal from shipment to tidewater during the week, although a few cars were allowed to go through to Curtis Bay and to St. George. Most of the coal from northern West Virginia for export was halted, however, pending the arrival of vessels. The tidewater embargoes caused an increase in shipments to the Lakes throughout the week, such business being picked up in order to make up for loss of tonnage to the East. That railroad companies operating in New England are beginning to accumulate a fuel supply for use during the winter has become apparent through the heavy shipments of railroad fuel to New England, there being a heavy movement of coal for that purpose out of northern West Virginia regions during the week.

Huntington, W. Va.

Logan district increases production in first week in September despite holiday, car shortage and threatened invasion of miners from other fields. Logan production in Aug., 1919, was 990,000 tons—400,000 tons less than in Aug., 1918.

Even though facing an invasion from an armed body of miners, the Logan district during the first week of September succeeded in materially increasing production despite the fact that Labor Day opened the week. Furthermore the mines of the field were put on an eight-hour a day basis on Sept. 1, so that the increase was achieved with less hours in which to work and with difficulties from the outside which might have been expected to demoralize Logan miners. The output was increased from 199,000 tons to 219,000 tons or 65 per cent. of capacity. Figures show that despite such an increase there was still a shortage of cars amounting to 27 per cent. or 91 941 tons, against a 44 per cent earlier shortage which had resulted in a loss of 177,000 tons. The labor shortage only amounted to 1.54 per cent. The production loss of only 11,963 tons was due to Labor Day. During the second week of September transportation conditions were not so satisfactory, cars being scarce, production being cut down as compared with the previous week to a very appreciable extent.

Just how serious a car shortage there was in the Logan field during August is shown in the fact that only 634,424 tons were mined out of a possible total of 1,704,000 tons. In other words, only about 37 per cent. of a possible total was produced. Therefore, there was a production loss of 1,069,000 tons or about 62 per cent. Of the 62 per cent. loss, shortage of cars throughout the month was responsible for 57 per cent, or 977,000 tons. In August, 1918, the production of coal in the Logan field was 990,000 tons so that it will be seen that August, 1919, production was almost 400,000 below that for the previous year.

Coal loading on the Chesapeake & Ohio R.R. system during the week ended Sept. 6 reached a total of 11,556 cars or approximately 577,800 tons, loading from the New River and Kanawha fields as well as the Coal River field decreasing and from the Logan field increasing. The movement for the previous week was 11,798 cars.

Bluefield, W. Va.

Serious shortage of transportation in Pocahontas field. Number of mines shut down in consequence. Little Pocahontas coal mined, due to lack of vessels at tide.

A total of 47,000 tons was sliced off the output of the Pocahontas region during the week ended Sept. 6 simply and solely because of a most pronounced shortage of cars. There had been a heavy loss during the previous week—139,000 tons—because of a car shortage, but when the loss jumped to 158,000 tons (during the week of the sixth) it became so serious that operators were alarmed, especially when it became necessary to shut down a number of mines. Operations were so seriously crippled that producers throughout the Pocahontas field made trips to Bluefield during the week in order to secure some relief if possible. Railroad Administration officials said the shortage was due to the failure of connecting lines to deliver empties, and the promise was given that an effort would be made to secure more empties from western lines. During the last week of August, production had reached 329,000 tons. The loss of 47,000 tons reduced the output to 282,000 tons. Other sources of loss were insignificant as compared with the car shortage. While Pocahontas operators have been continuing to ship to tidewater—although little Pocahontas coal has been mined owing to lack of vessels—producers expected to have at least a few vessels in time to move some production during the second week of the month.

PENNSYLVANIA

Anthracite

Minersville—Preparations are being made for the opening of a large new mine at Mt. Pleasant, in the Pottsville-Minersville district, Schuylkill County. Steps are now afoot to install the machinery, preparatory to a regular opening. The nearest operation in this district is the Glendower colliery of the Philadelphia & Reading Coal and Iron Co. These mines will likely send their product through Minersville by an extension of the Glendower trackage. The operation will afford work to hundreds of additional men about Minersville.

Pottsville—After a period of ten years fire has again broken out at the Pine Knot colliery, Heckscherville, near here. This fire was supposed to have been extinguished years ago. Mine Inspector M. J. Brennan and other officials have located the flames in the Red Ash seam between the fourth and fifth levels. The fire is not causing any smoke, but emits carbon monoxide; however, it is said no active section of the mine will be compelled to stop work. Every reasonable precaution has been taken to safeguard the lives of the miners, the portion affected being sealed up. This colliery belongs to the Phildelphia & Reading Coal and Iron Co.

Scranton—A squeeze of considerable proportions in the Diamond seam workings of the People's Coal Co., underlying the 100 block of South Main Ave., here, threatens a number of properties. The squeeze extends to South Hyde Park Ave. and practically condemns the proposed site for the new Junior High School. This site is said to have been offered to the Scranton school board for $50,000, including mineral rights in the two top seams. It is said by James B. Smith, city mine cave engineer, that the entire area will settle an average of four feet, despite the fact that gangs of workmen are engaged in "cogging" the seam to relieve the danger.

Hazleton—In a decision handed down here recently Charles P. Neill, of Washington, umpire of the anthracite conciliation

board, ruled that no agreements can be made between mine superintendents and committees of the union regarding wages or working conditions, which are not in accord with the terms of the contract as officially on file. The decision was made in the case of a lampman at the Blackwood colliery of the Lehigh Valley Coal Co. in the Schuylkill district. The lampman worked over the established eight-hour shift and when he asked for a higher rate than was paid him a satisfactory figure was set by the superintendent and the colliery committee. When the war allowance was to be applied the company claimed that it should be on the nine-hour basis, but President Golden, of the United Mine Workers of district nine, contended that this could not be done. He based his objection on the grounds that the compensation granted the lampman had been illegally set.

Bituminous

Waynesburg—It is reported that The Cumberland Coal Co., of Carmichaels, Greene County, Penn., has purchased from Levi Keener, of Morgantown, and F. H. Keener, of Willow Tree, W. Va., a three-fourths interest in 249.29 acres of coal in Greene County, Penn. The consideration was $115,915.15 and the price per acre was about $625.

West Natrona—The inquest into the riot at the mine of the Allegheny Coal and Coke Co. at this place will be held on Sept. 26. Two persons were killed here on Aug. 26 when mine guards are alleged to have fired into a crowd of strikers. Federal, state and county authorities have been conducting separate inquiries in the matter. It is stated that each side now is ready to proceed with the inquest.

Uniontown — Reorganization of the Thompson-Connellsville Coke Co., since control was acquired by J. H. Hillman, Jr., of Pittsburgh, has resulted in the appointment of Harris Booker of Pittsburgh as general manager of the company's two Fayette County plants, with Thomas Tudor as superintendent of Thompson No. 1 and J. G. Young as superintendent of Thompson No. 2.

Idamar—Vernon R. Taylor has disposed of his coal holdings in Indiana County to the Empire Coal Mining Co. The new interest took control at once and will continue on the same extensive plans inaugurated by Mr. Taylor. The consideration was not given, but it was understood to be in the neighborhood of $500,000. The operation is known as the Dixon mine, and its present capacity is about 125,000 tons a year.

Pittsburgh—The report comes from a correspondent that the directors of the dissolved Pittsburgh Coal Co. (a New Jersey corporation), have been directed by Vice Chancellor Stevens, at Trenton, N. J., to wind up its affairs and to take charge of its assets in the interests of creditors, who are directed to present their claims and demands within six weeks beginning Sept. 10. The directors who perform this work are: James H. Beal, William Flinn, D. L. Gillespie, and F. J. LeMoyne, of Pittsburgh; J. C. Dysart, of Hollidaysburg, Penn.; W. H. Taylor, of Erie, Penn., and W. K. Ficho, of Columbus, Ohio. This corporation was chartered on Aug. 31, 1899, with a capital of $2,000,000, which was increased later to $64,000,000 and decreased July 10, 1917, to $1,327,500, which latter amount represented the outstanding capital at the time of dissolution on June 3. last. The business of the company was that of holding stock of other corporations, said to be principally the Pittsburgh Coal and Iron Company.

WEST VIRGINIA

Fairmont—The tipple at what was formerly the Gaston, or mine No. 56, of the Consolidation Coal Co. at Watson, W. Va., was entirely destroyed by fire recently entailing a loss of about $6,000. The Gaston mine had been operated since about 1860 when it was opened by the late J. O. Watson and former Governor A. B. Fleming; it was only abandoned five or six years ago when the Consolidation company concentrated operations in this section. The tipple will hardly be rebuilt.

Charleston—West Virginia promises to be well represented at the first-aid and mine-rescue meet to be held by the Bureau of Mines at Pittsburgh on the first of the following month. It is stated that some 50 teams will attend from this state. It is further noted that 68 teams from the whole country has agreed to participate and about 300 are expected. It has been decided to limit the contests to full team events, and the prizes have been increased proportionately.

Charleston—There is a shortage of miners in West Virginia today of from 5,000 to 10,000 men according to figures made public by Thomas Cairnes, Federal Director of the U. S. Employment Service for West Virginia, notwithstanding statements recently made by J. B. Densmore, Director General of the U. S. Employment Service that thousands of miners are idle and that there is no labor shortage. There is also a shortage of miners in eastern Ohio. Nearly all the producing districts of West Virginia were represented at Washington when the senatorial investigation into coal prices was begun at Washington on Aug. 26. The state association was represented by President J. G. Bradley and Secretary W. H. Cunningham. Nearly all district associations held meetings in West Virginia the week before the senatorial probe began and discussed its various phases, directing proper officials to have all available figures ready for the use of the committee.

KENTUCKY

Hickman — River coal companies are slowing up their river operations southward, due to low water in the Mississippi, there being but six feet at Point Pleasant, 30 miles below here.

Echols—Donald McDonald, vice president of the Louisville Gas and Electric Co., was present at the opening of the community house here by the company. This mine is in Ohio County near the western end of the state on the Louisville & Nashville R.R. and the plant furnishes coal for the company's power plant at Louisville. The community house was erected for the use of the employees of the company. Mr. McDonald gave a good talk to those present at the opening of the house and drove home some pertinent thoughts for their consideration. Among other things he said: "Our company has built this community house at a time when nearly everything was hard to get. We have built it because we want to keep at Echols the very kind of people who are here now. We want to provide a place where men can gather in peace and comfort; where church services can be held; where Sunday school can be taught; where lodge meetings and all the various things that bring people into closer contact with each other can take place. If for any reason, the work of mining coal is delayed or made difficult, I want you to know that the officers of the company have a keen interest in correcting every fault as soon as possible." Many of the larger and more progressive companies are approaching their employees along similar lines.

OHIO

Steubenville—A keg of powder was ignited in the powder room of the Warner Coal Co.'s Wolf Run mine at Amsterdam, Ohio, recently; eight men were injured, three probably fatally. The mine is 15 miles east of this place. Mine officials state that the accident occurred in the powder room where the men were preparing the powder for the day's work. A live wire, it is said, set off one keg of powder and the blast following wrecked the house and hurled the men in all directions. The men, who were terribly burned, were brought to the Ohio Valley Hospital here in ambulances.

Columbus—A movement is on foot, with Pittsburgh men at the head of the organization, to build a railroad from Reeds Mills to Richmond, Jefferson County, Ohio. The proposed road will connect with the Pennsylvania at Reeds Mills, tapping rich coal territory. Following the construction of the line, development in that territory is expected to start actively.

After several months' collection and tabulation of data, tonnage figures for the proposed central route of the Great Lakes-Ohio River Barge canal project have been completed, showing the available tonnage of 51,147,326 yearly. The report shows that fully 20,017,000 tons of coal and iron ore would pass through the canal. These tonnage figures will be submitted to the War Department and Congress in order to get the central route adopted.

The Hazelton Coal Co., organized a year ago, has taken over the offices formerly occupied by the Columbus branch of the Lake Erie Coal Co., located in the Columbus Savings and Trust Bldg. Recently the company acquired the Gem mine, near Straitsville, which has a capacity of 800 tons daily. The company will also do a general jobbing business. F. M. Spencer is general manager in charge of sales.

The Schuler Coal Co., of Cleveland, will soon open sales offices in Columbus, in charge of Ernest E. Hazelton, formerly secretary of the Dean Coal and Coke Co. The mines are near Zanesville.

INDIANA

Evansville—The organization of the Mine Bosses' and Fire Bosses' Mutual Protective Association was completed at a meeting of about 50 mine and fire bosses held in this city. It will extend its membership over the entire state. It was organized with representatives from the coal fields in the districts of Evansville, Boonville, Newburg, Bicknell, Winslow, Oakland City, Petersburg, Fort Branch, Chandler, Buckskin and Vincennes. John C. Wright, Boonville, was elected president; George Bennedict, Winslow, vice president; William Henry, Boonville, secretary; H. J. Hargrove, Elberfeld, treasurer; Arnold Costmeyer, Winslow, George Lutz, Buckskin, and John Randall, Bicknell, are the trustees; James Boyd, Winslow, guard, and John McCain, Chandler, guardian.

ILLINOIS

La Salle—About six years ago the Spring Valley Coal Co. closed down its plant at a small town near here, throwing some 400 miners out of employment. This action affected Seatonville—an adjacent town—to such an extent that its bank quit business and most of the stores discontinued. The miners' cottages here, untenanted and neglected, went to ruin and the town began to dwindle, both in population and importance. Special interest attaches to this section just at present as it was here that John Mitchell spent his early years.

Waukegan—The Waukegan Coal Co. of this place (in Lake County) has been incorporated with a capital of $100,000 to operate coal mines. The C. Reiss Coal Co. (through President Peter Reiss, of Sheboygan, Wis.) is the largest stockholder. Other stockholders are Peter Reiss, William A. Reiss and Clemens A. Reiss, all of Sheboygan, Wis.; and A. A. Mirick, of Waukegan, Ill. It is said that the Reiss company, which owns all the large docks in Waukegan, and operates coal mines in Ohio and other states, is in line with its present policy to develop its own mines extensively rather than depend on other operators for their supplies.

Chicago—In view of the expressions heard from various parts of the country, the folowing notice to roads in the Northwestern region, by Regional Director Aishton, is of interest: "Previous instructions as to handling of coal cars are not producing sufficient relief, and there is a shortage of cars at mines with an increasing heavy demand for this class of equipment. This necessitates your personal active interest in following up prompt release and return movement to mines of all coal carrying equipment, returning foreign cars home without delay, moving them empty where there is no immediate loading to or in the direction of mines or home line."

MISSOURI

New Bloomfield—A movement to revive the mining of cannel coal in Callaway County, near the center of the state, has been inaugurated by T. L. Price of Jefferson City, who will reopen a mine at Holt Summit, where there is a 5-ft. seam.

St. Louis—H. D. Mepham, who recently purchased at auction sale the Illinois Southern Traction Co., announces that the line will be in operation between East St. Louis and Belleville in about six weeks for coal-carrying purposes, and later for passenger service. The road expects to do a large coal transportation business this winter, serving several mines either on its line or on spurs, six of which have been constructed to connect with as many mines. It is planned to extend the line ultimately to Duquoin, in the southern Illinois field. The line is expected to enter St. Louis over the free bridge under a permit, in lieu of a franchise. If suitable encouragement is given, the company will build a terminal in St. Louis.

UTAH

Salt Lake City—Senator Reed Smoot, whose home is in this place, took an active part in the discussion of the coal and oil lands leasing bill at Washington, when that measure was up in Congress. As the bill was originally reported, it was provided that each city in the states of the West should have a certain number of acres of coal land turned over to it; originally this acreage was only 320. Sena-

tor La Follette thought cities of from 100,000 to 150,000 inhabitants should be allowed 1000 acres, and those of more than 150,000 population should have 2560 acres. Senator Smoot cited his own home place —Salt Lake City—with an estimated population of 340,000, and declared that if this city filed on 320 acres of coal land, it could not work it out in 100 years. He continued, by way of explanation, that some of the fine thick seams in Emery County and in the adjacent counties included in the Wasatch basin that coal from 320 acres would last Salt Lake City for that length of time. Coal mines have been working in this basin for 30 years, sending coal into Montana, California and Nevada, and to every city in Utah. The coal taken from these mines during this time has hardly made a showing on the deposits in the Wasatch basin.

MONTANA

Roundup—Work is to begin shortly on the development of a coal mine on the Great Northern R.R. between Belmont and Broadview, near the line between Musselshell and Yellowstone Counties. The lessees are F. V. H. Collins, Ralph G. Schaeffer and Charles M. Bair, all of Billings, Mont., representing a group who are developing a mine near Carpenter Creek. The period of the lease is ten years, with the privilege of renewing for 25, and the lessees agree to expend $50,000 in opening and developing the mine, at least one-half of which must be expended the first year. The lease also provides an option whereby the plant may be bought for $55,000 any time within two years.

Personals

Earl Myers has recently been appointed sales manager of the Westmoreland Fuel Co., with office at Pittsburgh.

William H. Harris, district representative of the Colonial Supply Co., has moved his offices from 312 Federal Bldg. to 507 Stambaugh Bldg., Youngstown, Ohio.

H. P. McCue, who opened an office in the interest of the Peabody Coal Co., of Chicago, in Buffalo last spring, has resigned to go into business on his own account. **James Bonahan,** who formerly represented the company at Madison, Wis., has been appointed to succeed Mr. McCue.

A. A. Schneider, formerly with the Raw Materials Department of the Midvale Steel and Ordnance Co. and Cambria Steel Co., has been appointed manager of the newly created Raw Materials Division of the American Steel Export Company. Mr. Schneider will handle imports, exports and domestic sales of certain metals, ores and coal and coke.

E. L. Sullivan has been appointed to represent the Green Engineering Co. in the Pittsburgh district including western Pennsylvania, eastern Ohio and western West Virginia. Mr. Green has been a special representative for the McDonough Regulator Co. for the past ten years and he has devoted all of his time to special investigations pertaining to the securing of more efficient boiler and furnace operation.

Charles E. Gradwell, of the firm of Gradwell & Phelis, Birmingham, England, will leave for China as soon as he places certain contracts in England. He has been appointed special buyer of scrap for the Hofmann-Sproul Co., of Philadelphia. This latter company handles scrap, new materials, second-hand specialties, chemical products, etc. The following men have recently joined the Hofmann-Sproul organization: E. R. Dowd, formerly with the Tioga Steel and Iron Co., and again with the Bethlehem Steel Co.; E. R. Campbell, formerly with the American Steel Foundries; Walter Maccallum, chemical engineer.

Obituary

Eben Briggs Thomas, for 15 years president of the Lehigh Valley R.R., died at his home in Morristown, N. J., on Sept. 4. Mr. Thomas was succeeded as president in February, 1917, by E. E. Loomis, and up to the time of his death was chairman of the executive committee of the board of directors of the company.

Edward L. Stephenson, president of the E. L. Sternberger Coal Co., died at his home in Clifton, Ohio, recently at the age of 57 years. In addition to his position at the head of the Sternberger company, at Jackson, Ohio, Mr. Stephenson had extensive busines intersts in the town at which the mines are located. During the war his application to change his name from Sternberger to Stephenson was granted by court. His widow and six children survive.

Coming Meetings

Coal Mining Institute of America will hold its annual meeting Dec. 3, 4 and 5 at Pitsburgh, Penn. Secretary H. D. Mason, Jr., Pittsburgh, Penn.

Alabama Safety Association will hold a field meeting Oct. 25 at Birmingham, Ala., at which first-aid and mine-rescue contests will be held. W. B. Plank, engineer in charge of the Mine Rescue Bureau at Birmingham, Ala., is chairman of the Board of Managers.

American Institute of Mining and Metallurgical Engineers will hold its fall meeting Sept. 22 to 26 in Chicago, Ill. Chairman Chicago meeting, Carl Scholz, 547 West Jackson Boulevard, Chicago, Ill.

American Mining Congress will hold its 22nd annual convention Nov. 17-21, at the Planters Hotel, St. Louis, Mo. Secretary J. F. Callbreath, Munsey Bldg., Washington, D. C.

The Bureau of Mines on Sept. 30 and Oct. 1 will hold a national first-aid and mine-rescue contest at Pittsburgh, Penn. Included in the events will be the dedication of the Bureau of Mines Building.

National Exposition of Chemical Industries will hold its first annual meeting at the Coliseum and First Regiment Armory, Chicago, Ill., during the week of Sept. 22. Manager, Charles F. Roth, 417 South Dearborn St., Chicago, Ill.

The National Safety Council will hold its annual meeting Oct. 1 to 4 at Cleveland, Ohio. Secretary, S. J. Williams, Chicago, Ill.

Industrial News

Thornton, Ky.—A. C. Craft has leased coal lands on Thornton Creek, and will install new development.

Bluefield, W. Va.—A number of new houses for miners are under construction at the plant of the Ennis Coal and Coke Co. at Hiawatha (Mercer County) W. Va.

Baltimore, Md.—The Western Maryland R.R.'s coal pier at Port Covington was destroyed by fire recently. The pier—1000 ft. long—together with cars and quantities of coal were destroyed.

Bluefield, W. Va.—Recently the holdings of the Davy Pocahontas Coal Co. were sold by the receivers, Dr. W. R. Iaeger, of Ware Neck, Va., and Geo. W. Atkinson, of Baltimore, Md., for $40,000.

Paintsville, Ky.—The North East Coal Co., Henry Laviers, manager, has recently purchased the Fluhart Collieries Co's operation at White House, Ky., and has started considerable reconstruction work.

Grantsville, Md.—The Georges Creek Coal Co. is understood to be arranging plans to increase the capacity of its works from 150 to 350 tons daily. Harry E. Weber, Third National Bank Building, Cumberland, is president.

Philippi, W. Va.—Operations have been started by the Estella Coal Co. at its new plant near this city on the opposite side of the Tygarts Valley River. The company will find it necessary either to bridge the river or to construct a bucket conveyor system across it.

Beechwood, W. Va.—The local properties of the Consolidation Coal Co., known as the Beechwood mines, have been acquired by new interests, headed by George S. Connell and Joseph J. Buttermore, Connellsville, Pa. The new owners are planning for the operation of the mines at capacity.

DuBois, Penn.—At a meeting of the DuBois Coal Corporation, held at Reynoldsville, Penn., the following permanent officers were elected: D. M. Straitwell, of Reynoldsville, president; N. V. Cossaboon, Salamanca, secretary; Edward Montgomery, DuBois, treasurer.

Powhatan, W. Va.—Plans have been completed by the Mohawk Coal and Coke Co., on Tug River (McDowell County) with headquarters here, for the construction of a modern tipple. Col. L. E. Tierney is also the president of the Powhatan Coal and Coke Co. located on Elkhorn Creek, at this place.

Chattanooga, Tenn.—The Raccoon Coal Co., recently acquired by new interests, is arranging for the installation of new machinery and equipment at its properties, Raccoon Mountain mines, near Chattanooga, to increase the output to a total of about 300 tons a day. W. L. Weaver is in charge of operations.

Bluefield, W. Va.—The Carter Coal Co., located on Lewis Creek, in Russell County, Va., was sold at public auction. The company, it is said, brought $38,000, this having been the bid of W. R. Crenshaw, of this city. Mr. Crenshaw said that he was not at liberty to make known whom he represented.

Chapmansville, W. Va.—T. Truston Stiles, Jr., (Robson-Prichard Building) and C. R. Conner, Huntington, have recently completed negotiations for the purchase of coal properties located on the Guyan Valley R. R., comprising a total of 1105 acres. Plans are being arranged for the development of the property.

Chicago, Ill.—The Chicago Pneumatic Tool Co. announces the removal of its Cincinnati office from the Mercantile Building to the Walsh Building, where a service station with a complete stock of tools and repair parts will be kept. The announcement is also made of the appointment of Fred Gehbauer as special Navy Yard representative, with headquarters at the company's Philadelphia office.

Independence, W. Va.—The Pyramid Coal Co., of this place, has just purchased the property of the Irving Coal Co.—both of Preston County. It is the intention of the Pyramid company to improve and enlarge the plant of the property acquired, and catalogs from machinery and accessory houses will be appreciated. The mine of the Pyramid company is at Hardman, W. Va. C. D. Stewart is president.

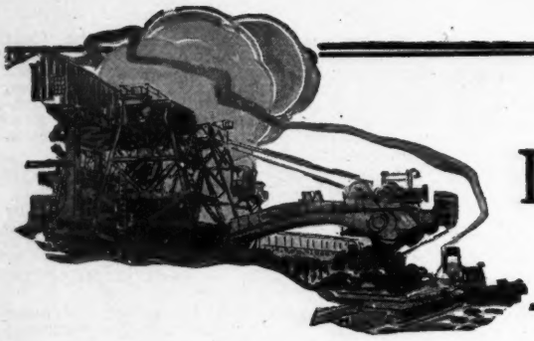
Bluefield, W. Va.—A new coal field on Mill Creek in the Pocahontas field will be opened for development through the building of a branch of the Kanawha, Glen Jean & Eastern R.R. up Mill Creek. Construction work on a mile and a quarter stretch of the branch will be started shortly and as soon as construction work is finished the Lee Coal Co. will begin shipping coal from this section.

South Milwaukee, Wis.—The Bucyrus Co., of this place, announces that it has opened a Cleveland office in the American Trust Bldg., Cleveland, Ohio. This office will be in charge of E. G. Lewis, formerly with the New York office of the Bucyrus company, and more recently president of the New Jersey Slag Products Co., Dover, N. J. Mr. Lewis has had a long experience with contracting and excavation work of every description.

Wheeling, W. Va.—The Woodland Coal Co. has completed arrangements for the sinking of two shafts on Fish Creek, in Marshall County, with the C. L. Miller Co., of Scottdale, Penn. One of the shafts will be 181 ft. and the other 203 ft. deep. The sinking of the shafts in question marks the beginning of active operations on the tract of 3000 acres which the company has had under option for several years. The company was organized only a short time ago with a capital of $400,000. Arrangements have also been made for the construction of office buildings, miners' houses, etc. as well as for an electric light plant.

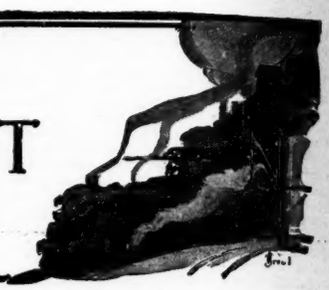
New York, N. Y.—The Worthington Pump & Machinery Corporation announces its purchase of the plant, patterns, accounts, patents and other assets of the Epping-Carpenter Pump Co., of Pittsburgh, Penn. The plant will be operated as the "Epping-Carpenter Works." Orders and contracts now in hand will be completed by the Worthington corporation and all further business will be for its account. Remittances should be made to and all correspondence should be addressed to the Worthington Pump & Machinery Corporation at the Epping-Carpenter works, Pittsburgh, Penn.

New York, N. Y.—Pulverized coal is finding application in many industries. The Garred-Cavers Co., of this place, reports that it has made contracts and issued licenses for the use of its process at a number of smelters, including the International Nickel Co., of Canada, Ltd., and the Tennessee Copper Co. The results of experiments at the smelters of these companies have been made public and more recently experiments have been carried out at a smelter in Peru with quite encouraging results. W. J. Hamilton, the consulting engineer of the Garred-Cavers Company, also reports the use of pulverized coal in blast furnaces.



MARKET DEPARTMENT

EDITED BY ALEX MOSS



Weekly Review

Soft Coal Market Dull—Buyers Want Only Best Grades—Awaiting Miners' Demands—Lake Trade Active—Strong Demand for Domestic Sizes of Hard Coal —Egg and Nut Coal Now in Short Supply

THERE is no life to the soft coal market in the eastern section of the country. The demand for the steam sizes is even less pronounced than was the case last week. The larger consumers who contracted for their entire season's requirements are receiving their full quota every day, and other buyers exercise keen discrimination and accept only the most desirable grades. However, the present condition of the market has not resulted in any radical changes in price. In the Middle West territory there is a strong demand for prepared coal, though the inquiry for steam coal appears to have suffered a relapse.

Operators are not expressing any opinions at this time as to the demands being formulated by the miners now in convention at Cleveland, preferring to discuss the matter when all the demands shall have been presented.

The lake trade is rather active, although limited car supply is restricting lake shipments to a certain extent. The demand for coal from the Northwest is still good, and the movement will undoubtedly continue until late in November. Reports show that some congestion at the docks is hampering shipments, and dumping for the past three weeks are reported as being behind last year's figures.

There has been no apparent change in the anthracite situation. Demands continue strong for all the domestic sizes. Stove coal is more easily obtainable than egg and nut, which show signs of becoming scarce. Many of the early orders on the dealers' books have already been delivered, and if shipments of hard coal from the mines continue on the present basis no serious trouble is anticipated.

Shippers continue to report large demands from Canada, but not so much talk is heard of premiums being offered. Buyers there do not appear to be so eager as they were, as the supply of coal is becoming larger.

WEEKLY COAL PRODUCTION

The observance of Labor Day as a holiday in some districts and not in ohers renders difficult of interpretation the reports of coal production during the week ended Sept. 6. Production is estimated at 9,660,000 net tons, an absolute decrease of 7.6 per cent. compared with the week before. While the actual production went down, however, the rate of production appears to have gone up. Studies made in 1918 and 1917 indicate that considering the country as a unit Labor Day counts for only about 0.3 of an ordinary working day. Assuming that the same rate will hold true for 1919, the average production per working day during the week of Sept. 6 would be 1,823,000 tons, as high an output as has been attained this year. Whatever the precise level of the daily average, the conclusion appears warranted that production is at least maintaining the mark set in late August.

Anthracite production, like bituminous, felt the effects of the Labor Day holiday. The total output during the week ended Sept. 6 is estimated at 1,481,000 tons, a decrease of 465,000 tons, or 24 per cent., when compared with the preceding week. The drop in production was less, however, than that which accompanied Labor Day last year, when the week's output fell off 642,000 tons, or 28 per cent.

The slight decrease in production noted in last week's issue is now shown by the detailed reports of the operators to have been due to shortage of cars. The decrease would have been more noticeable had not the less satisfactory car supply been partially offset by more satisfactory labor and market conditions.

The labor shortage reported recently from Kansas, Missouri and Iowa is disappearing as the mines offer more continuous employment under the influence of stiffening demand. In Iowa, for example, losses of output attributed to shortage of labor decreased from 7.7 per cent. of capacity in the week of Aug. 23 to 3.0 per cent. the following week. Pennsylvania operators still report shortage of labor, but conditions improved slightly during the week in all districts except Westmoreland. Marked improvement in the labor situation occurred in Illinois, where, following the cessation of the recent strikes, losses due to labor fell from 20.5 to 13.6 per cent. of capacity.

The gradual resumption of industrial activity continues to be reflected in the quickening demand. Taking the country as a whole, losses due to lack of market were only half as great in the week of Aug. 30 as during the week before (1.8 per cent. as compared with 3.6 per cent.). Demand weakened somewhat in Ohio, in the high volatile fields of southern West Virginia and in the Hazard district in Kentucky, but in Harlan County, Alabama, Illinois and Iowa it was more active. "No market" has become the least important factor limiting production.

Reports of car shortage were more frequent than during the preceding week. Except in Ohio, Alabama and the Pocahontas field, the situation changed for the worse. For the country as a whole the percentage of full time capacity reported lost on account of lack of cars was 24.1 per cent. during the week of Aug. 30 as compared with 16.8 per cent. the week before. In part the change was more apparent than real. The car supply, instead of improving during the week of Aug. 30 became somewhat less satisfactory. At the moment, the principal obstacle in the way of increasing production is shortage in cars.

A 7 per cent. increase over the preceding week brought the production of beehive coke during the week of Sept. 6 to the highest mark attained since last Februrary. The total output is estimated at 448,020 net tons as compared with 417,461 tons during the week of Aug. 30. Most of the increase occurred in Pennsylvania and Ohio. Producers in the Rocky Mountain district also reported decided gains.

The output of beehive coke is a sensitive business barometer. Although the rate of production is still far short of a year ago (448,020 tons as compared with 616,433 in the corresponding week of 1918), the steady increase which has now continued without interruption since last May is a significant indicator of the general resumption of industrial activity.

For the third time in succession, the tonnage of bituminous coal dumped at Lower Lake ports was less than during the corresponding week of 1918. Dumpings for the week ended Aug. 31 are reported as 669,484 net tons compared with 1,139,956 tons a year ago.

BUSINESS OPINIONS

Dry Goods Economist—So high are prices of better grades of women's garments that we are creditably informed that in some centers the demand for women's garments in the high-class specialty stores are beginning to show a decline. It seems clear that stores of this character will be compelled to lower their profit percentage, in order to meet the requirements of their clienteles.

Marshall Field & Co.—Current wholesale distribution of dry goods was very much larger than during the same week a year ago. Orders from road salesmen for immediate delivery showed large gains over the same period of 1918. Orders for future delivery are quite satisfactory. The number of customers in the house is approximately the same as during the corresponding week of 1918. Collections are excellent.

American Wool and Cotton Reporter—Although the wool market is still comparatively quiet, there seems to be a better feeling, more inquiry and more buying. Prices remain at practically the same levels, although in some cases concessions have been made by dealers to regular customers. Cancellation of export orders is going on to a considerable extent, because of the decline in the foreign exchange market. This situation is regarded as serious and is one of the most disturbing elements in the current domestic position.

Dun's—With the labor situation still disturbing and the future holding various elements of uncertainty, conservatism in business remains conspicuously present, though there is less hesitation than recently. Reviving activities in some lines which have lately been halting, while buyers awaited price concessions that have not been absent, give conditions a stronger appearance, and no inconsiderable impetus to manufacturing and distribution comes with the advancing season. The best feature, however, is the fact that prices of not a few commodities have fallen abruptly from previous extreme levels, and that in some quarters, at least, the crest seems to have been definitely passed.

Bradstreet's—With the advance of the Fall buying season and the activity engendered by active purchasing by retailers

from Western, Northwestern and Southern jobbers, there is a rather more pronounced tinge of optimism in the trade advices this week. This, of course, does not conceal the fact that in some big primary lines and markets at the East there is quiet, coupled with uncertainty as to the outlook for the rather more distant future, this having its rise largely in the continued unsettlement of labor, the threats of new strikes, the doubtful outlook in the exchange markets and the further shading of crop prospects, except of corn, indicated by the Government reports.

Atlantic Seaboard

BOSTON

Market heavy. Only scattered inquiry. Prices eased materially on all except highest grades. Cancellations become frequent. Coal over Philadelphia and New York piers also affected by conditions. Hampton Roads coals continue firm. Delivered prices strong for inland delivery.

Bituminous—The dullness of steam trade is even more pronounced than was the case last week. The market is heavy and salesmen are out canvassing for orders to take their operators through September. Even on fancy grades it is not impossible that shippers who have consistently declined business since June 1 will again look for spot orders within a few weeks. Labor and car-supply are much better in most of the districts and operators who were apparently able to start only a few cars each day are now shipping up to quota on every order they have. In other words, the market here has flopped back to the situation that prevailed early in the spring, and buyers are today practically without interest in current quotations. The larger consumers, while still accepting deliveries, are shutting out the less desirable grades.

Inquiry is only scattering and confined to small tonnages. Buying of this sort comes mostly from small users who were not in position to make contracts early in the season. There are only a few cases where steam-users had prevision enough to delay purchases in anticipation of easier conditions in the fall. The drift was all the other way.

Prices the past few days clearly show the result of recent heavy output. Ordinary Clearfield from regions around Philipsburg have been quoted down to $2.40 within a few days and this is quite a notable drop from the $2.85@2.90 level that obtained only a few weeks ago. "D" vein coals have eased off from $3.20 at first hand to $2.90@3.00 and further concessions are looked for. The low-ash, low-sulphur specialties from favored sections in Cambria County are still held at a high range by the discriminating purchases of factors who purchase for off-shore or bunker use, but it is quite likely that these grades also will show some recession in price in another fortnight.

A considerable volume of coal has been coming forward on open orders and on sales of this kind cancellations have latterly become frequent. There is also a tendency to complain of quality and there never was a season when the average buyer was so well informed as to mine origins as is the case today. There is something of a tendency on the part of operators to over-ship, and more than a few cases have been heard lately where this has been a practice greatly to the inconvenience of the consignee.

While until quite recently the demand was active and strong for good grades available at the piers for dumping, the current market both at Philadelphia and at New York has shown the effect of depressed prices all-rail. The level of quotations has dropped 20c.@30c. since Sept. 10, and further reductions may be expected. The demand for export has not been steady, and both in New York harbor and on Long Island Sound there has been a slump in inquiry.

Contrary to reports on coals of different origin, the demand for Pocahontas and New River at Hampton Roads continues strong, with no sign of softer conditions later. Coal is coming down from the mines in good volume and the piers are being worked to capacity. Even now there are instances of demurrage on coastwise steamers, but apparently consignees at this end make no complaint so long as the coal is forthcoming. It is one of the strange features of this market this season that at the same time that Pennsylvania coals are being turned down because the territory all-rail is generally over-supplied there are still buyers who have so pronounced a preference for the high-grade coking coals that they are willing to pay extraordinary differentials to get the fuel they feel is best suited to their use. More than $2 differential is being paid at certain points by steam-users who maintain that attitude of discrimination.

Current quotations of bituminous at wholesale range about at follows:

	Clearfields	Cambrias and Somersets
F. o. b. mines, net tons	$2.40@2.85	$2.90@3.35
F. o. b. Philadelphia, gross tons	4.55@5.05	5.10@5.60
F. o. b. New York, gross tons	4.90@5.40	5.45@6.05
Alongside Boston (water coal), gross tons	6.65@7.15	7.20@7.75

Georges Creek is quoted at $3.70 per net ton, f. o. b. mines.

Pocahontas and New River are quoted at $6.00 @6.50 per gross ton f. o. b. Norfolk and Newport News, Va., in response to export demand. There continue practically no sales for coastwise shipment. On cars Providence these grades are quoted at $9.00 @9.25.

Anthracite—The retail trade has less snap, especially in the cities. It is still warm weather, and while there are a good many cellar bins to be filled between now and November a lot of progress will be made the next 30 days. Due to desperate measures taken by dealers in certain ports the receipts latterly have been in larger volume than during any similar period since February. At Providence, R. I., for example, figures for the five months' beginning Apr. 1 show receipts that compare very favorably with other years. Among those well-informed the impression is gaining ground that the coming winter is not likely to see the serious shortage that was feared. The present difficulties with miners in the Delaware & Hudson and Delaware, Lackawanna & Western sections of course have their bearing, but there is by no means the anxiety in trade circles that was evident a month ago.

NEW YORK

Demand for domestic coals easier. Egg size is the shortest followed by stove and chestnut in the order named. The smaller sizes are quiet. The bituminous market is quiet. Buying is slow and there is plenty of coal at the piers. New England buyers urge quick deliveries. Consumers discriminate as to quality. Lower prices expected as a result of Congressional inquiry.

Anthracite—The strike of the mine workers in the Wyoming region left no impress upon the local market. There seemed to be no reduction in the tonnage received here and the report of the Railroad Administration shows that more coal was dumped over the local piers than in the previous week.

There has been no apparent change in the situation as regards the domestic sizes. Demands continue strong for all the larger coals. Stove is in better supply than egg, which dealers now designate as the really short size. Chestnut is moving rapidly, but better along the rails than in this market. Pea is in good supply and moving easily.

The local market is in fair condition. Demand is steady but not pressing, and retail dealers are seeing daylight so far as orders are concerned. Most of the early orders have been delivered and if shipments are maintained on the present basis no serious trouble is anticipated. A few days of cool weather will increase the demand on the retail dealers, but these new orders will be mostly of ton or less-than-ton orders and will be easy to deliver.

Shippers continue to report heavy demands from Canada, but not so much talk is heard of premiums being offered. With the pressure easing off and the supply of coal becoming larger, buyers are not so anxious for quick shipments and are willing to take chances in getting the coal through in a reasonable time. What is most feared now is transportation difficulty or an exceptionally severe winter.

The retail dealers in New York City are not complaining. They are in most instances receiving fair shipments and some are said to have good stocks on hand. Egg coal is the shortest, the pressure on stove being easier.

Considerable chestnut has been absorbed by the local dealers, although New York City has never been looked upon as a market for that size.

The smaller sizes are quiet and demand is slow. Buckwheat is being taken care of by the producers, who are storing large quantities. Rice and barley are long and quotations for lots that must be moved are easy.

During the seven days ended Sept. 12 there were 5540 cars of anthracite dumped at the local railroad docks as against 4886 cars the previous week, an increase of 654 cars.

Quotations for company, white ash coals, per gross tons, at the mines and f.o.b. New York tidewater lower ports, follows:

	Mine	Tidewater
Broken	$5.95	$7.80
Egg	6.35	8.20
Stove	6.60	8.45
Chestnut	6.70	8.55
Pea	5.30	7.05
Buckwheat	3.40	5.15
Rice	2.75	4.50
Barley	2.25	4.00

Bituminous—This market is quiet. Demand has dropped because, some shippers say, buyers believe that lower prices will result as the result of the Congressional inquiry into the coal industry. The largest consumers here are nearly out of the market except for small lots. Contract coals are being readily taken and this causes a shortage of the better grades which continue to be in good demand.

Inquiries here have taken a sudden drop. Buyers are discriminating as to quality of coal offered and are not willing to take anything offered.

However, the present condition has not resulted in much change in price quotations. These for spot coal at the mines show a few small changes from last week while the quotations on pool coals indicate several changes.

Reports brought here from the Central Pennsylvania fields indicate some unrest among the workers but not sufficient to make the employers believe there will be any serious trouble this winter. Labor continues to be short and judging from the number of foreigners applying for passports at the New York Custom House is not likely to increase in the near future. The mines are not working near full time, but the car supply, especially along the Pennsylvania, shows a slight improvement.

Buying by the railroads is reported as heavy and considerable tonnage is being taken care of in this way.

Dumpings at the local railroads piers during the week ended Sept. 12 were 5570 cars of bituminous as compared with 5340 cars the week previous, an increase of 230 cars.

There is considerable coal in the various pools and quotations for coal, f.o.b. at the pier range about as follows: Pools No. 1, 9 and 71, $5.55@$5.90; No. 10, $5.15@$5.35; No. 11, $4.90@$5.10; and Nos. 18 and 41, $4.80@$4.90.

Quotations for spot coals, net tons, at the mine range about as follows:

	Spot
South Fork (best)	$3.25@$3.50
Cambria (best)	3.00@ 3.25
Cambria (ordinary)	2.70@ 2.90
Clearfield (best)	3.00@ 3.25
Clearfield (ordinary)	2.70@ 2.90
Reynoldsville	2.85@ 2.90
Quemahoning	3.25@ 3.50
Somerset (medium)	3.00@ 3.25
Somerset (poor)	2.65@ 2.75
Western Maryland	2.65@ 2.75
Fairmont	2.50@ 2.65
Fairmont ¾ in.	3.10@ 3.25
Latrobe	2.75@ 2.90
Greensburg	2.75@ 3.00
Westmoreland, ¾ in.	3.50@ 3.75
Westmoreland run-of-mine	3.20@ 3.35

PHILADELPHIA

Anthracite trade very active. Seasonable weather keeps dealers busy. Heavy tonnage in cellars. Stove, nut and egg most in demand. Premiums offered for favored sizes. Prediction of plenty fuel by winter. Strike has not yet affected this territory. Dealers in prosperous condition. Pea fast becoming a problem. Steam coals still quiet. Some buckwheat sold off. Bituminous eases slightly. Light price shading. Fairmont holds strong despite embargo.

Anthracite—With seasonable weather again prevailing the market is assuming a tone of regularity. There continues to be much pressure for delivery, especially since most of the vacationists have opened their homes and want coal. The fact that there is a strike of mine workers in the upper field has also affected the consuming public here.

It is believed it can now be said with some degree of assurance that there is little chance of a fuel famine locally this winter.

The great pressure exerted by the dealers at this time is believed in 90 per cent. of the cases to be for the reason that they are anxious to fill every piece of business that has come their way. The great strain continues to be on stove and nut, and from the information we can gather the amount of unfilled stove orders is in no way decreased, as the largest percentage of the new business is for this size. Many people when they find they cannot get stove express a willingness to substitute nut, but the time has long since passed when this can be done, for nut is almost as hard to get as stove. The yards have no stocks of these sizes whatever, and the point has been reached where the dealers in order to make deliveries in certain instances very readily pay premiums to individual shippers for a few cars of the above sizes.

The only size that is plentiful now is pea, and it must be admitted that this size is fast becoming a problem for all concerned. With the retailers they have been taking in pea all summer so as not to lose any of the larger sizes. Many of them have now reached the point where they are beset to find storage room for any more. This is particularly true of those concerns who have not been accustomed to store heavily on this size. Even some of the bigger dealers are beginning to feel the pressure, too. This is shown by quite a number of advertisements appearing in the local papers whereby the retail men are urging the public to take in pea coal at this time.

Some of those in the trade profess to believe that unless the strike in the upper field is settled very quickly it will likely have the effect of making the market for domestic sizes tighter than ever. While no tonnage from the affected district is ever shipped into this territory, yet the local coal comes into competition with that district in other territories and it would have the tendency to increase the premiums on certain sizes and in this way take tonnage from this district. There is also the possibility of the trouble spreading and thereby directly affecting this market, and it is this feature that has kept orders coming into local retailers in goodly number recently.

The steam trade fails to display any particular activity. Buckwheat is the only size that is being called for in any particular volume, and even this is not sufficient to absorb the production. There is much free buckwheat on the market and jobbing houses are able to procure it at prices around $3.15@3.25, although the companies rigidly maintain their price of $3.40. It is believed, though, that the turn of the road in steam sizes is not far off, as both rice and barley lately have shown some tendenly to quicken; at least inquiries are in greater number.

Bituminous—In the bituminous market there has been just the slightest tendency to easing off at times. This it is believed to be due to better car supply, at least in the Pennsylvania regions, where the average has been close to 70 per cent. recently; and in addition the rail movement has been good. Were it not for the fact that many big users delayed stocking up till late in the season, it is believed the market would be filled with coal. However, the desire to increase stocks is growing, but even this demand has not been such as to stimulate the price situation, and there has been a slight shading off in this respect. It is also noticeable that strictly brokerage houses have lately had a heavier supply of better grade coals to offer. For weeks past the commission men have had very little better than Pool 18 coal to offer, but recently they have appeared with fair stocks of Pool 10.

The Fairmont coals have held their own remarkably well, for with the embargo against this fuel at the Baltimore piers local houses confidently expected that a heavy tonnage would come on this market at reduced prices. As a matter of fact more than one broker took a chance at making sales in anticipation of lower prices and are now having the greatest difficulty to cover their commitments, and in some instances have done so at an actual loss.

The prices per net ton in this market are about as follows at this writing:

Georges Creek Big Vein	$3.30@3.40
South Fork Miller Vein	3.30@3.40
Clearfield (ordinary)	2.90@3.10
Somerset (ordinary)	2.90@3.00
Fairmont lump	3.20@3.30
Fairmont mine-run	3.00@3.10
Fairmont slack	2.50@2.60
Fairmont lump (ordinary)	2.95@3.00
Fairmont mine-run (ordinary)	2.70@2.80
Fairmont slack (ordinary)	2.50@2.65

BALTIMORE

Congestion of coal at tide due to insufficient vessels to handle big export flow causes continued embargoes. Market a little weaker as to price of steam coals. Hard coal men decide not to advance August prices.

Bituminous—A great rush of coal to tide, which came with more liberal car supply and as a result of the immense export business offering or closed, has caused a congestion at the pier approaches which has necessitated an almost uninterrupted embargo against shipments to either Curtis Bay or Canton. The number of vessels reporting for the first week of September was far below requirements, although a total of 65,985 tons were dumped into foreign carriers. This record, if maintained, would be sufficient to roll up a total for the last four months of the year that would make 1919 the banner export year in the history of the trade. As a matter of fact, there is every prospect of greatly increasing the present run.

The only pool open most of the time recently has been No. 9, which handles coal largely on local account. The market was naturally a little weaker under the congestion, especially as to steam fuels. Pool 71, recently holding stiff at $3.75, is now offering to the trade anywhere from $3.40 @3.75, with $3.50 about the average. Other steam pools are bringing mine basis to the trade about as follows: No. 9, $3.30@3.40; No. 10, $3@3.20; Nos. 11 and 18, $2.75@2.80; No. 34, $2.35. Gas coals hold pretty well to the figures of a week since, although there were probably some sales of three-quarter low sulphur below the accepted average of $3.50. Medium sulphur held around $2.75@3, while run-of-mine continued at $2.35. A move to ask reopening of the Locust Point pier of the Baltimore & Ohio and the Port Covington pier of the Western Maryland has been halted, in part at least, by the burning last week of the latter structure, causing a loss of about $700,000. It is now planned to build a new steel pier in its place.

Anthracite—Members of the Baltimore Coal Exchange have decided not to advance prices before the first of October at least on retail sales. Many dealers had felt that the premiums now being paid on independent coal of from 75c. to $1 or even more, a ton, would warrant a higher price at once in order to bring back the gross margin of profit to some dealers to the figures allowed by the Fuel Administration during the war. Others pointed out that the September sales as a rule are light, and that there would not be any great effect on income as a result of a September increase. It was then decided to permit the entire question to remain open for further discussion when the conditions to prevail in October become more certain. Meanwhile dealers here complain that certain popular sizes are short.

Lake Markets

PITTSBURGH

No opinions on miners' convention. Car supplies still poor. Production unchanged. General market steady with fancy prices occasionally paid.

Coal operators of the Pittsburgh district refuse to express any opinions as to the demands being formulated by the miners' convention in Cleveland, feeling that the serious discussion that must occur later in conference makes it undesirable that any opinion should be expressed at this time.

The situation as to car supplies is not visibly improved, and production continues as formerly at between 55 and 60 per cent. of mine capacity, with labor supply estimated as sufficient for a 75 per cent. production if sufficient cars were furnished. Orders on books, it is claimed, would admit of an even heavier production than 75 per cent. if there were sufficient supply of cars and of labor.

Lake shipments continue at about 15,000 tons a day from the district, or much less than earlier in the season, and will show further decreases before the end of the month. Supplies for the line trade do not appear to be any more adequate than formerly, as while shipments are larger demand is also greater.

Occasional sales are made of small lots of spot steam and gas coal at prices above the general market, which remains quotable as follows: Steam coal: Slack, $2.10@2.30; mine-run, $2.50@2.60; Gas: Slack, $2.20@2.40; mine-run, $2.50@2.70; prepared sizes, $2.60@2.80, per net ton at mine, Pittsburgh district.

TORONTO

Conditions show little change. Shipments from mines slightly increased. Deliveries still much in arrears. Bituminous not much in demand.

About the only change in coal market conditions during the last few weeks is a slight increase in the volume of anthracite shipments arriving from the mines. This however is not sufficient to enable dealers to overtake delayed deliveries, which are still much in arrear. The effects of the strike at the mines have not as yet made themselves felt, but unless a speedy settlement is arrived at, dealers anticipate a serious shortage. There is plenty of bituminous on hand to supply the demand, which continues comparatively light.

Quotations for short tons are as follows:

Retail	
Anthracite, egg, stove, nut and grate	$12.50
Pea	11.00
Bituminous steam	8.00
Slack	7.00
Domestic lump	10.00
Cannel	11.50
Wholesale f. o. b. cars at destination:	
Three-quarter lump	6.25
Slack	5.15

BUFFALO

Somewhat sagging bituminous market. Prices quite uncertain. Pittsburgh stiffening on account of car shortage. Anthracite still moving well in spite of strikes at both ends.

Bituminous—Jobbers call the trade unsatisfactory, though they are all selling a fair amount of coal. Of late the car shortage has been becoming worse. The prospect is that the shortage will last right into the winter. If it does, it is hard to see how the supply of coal can be kept up or the prices kept down.

Everybody in the lake shipping trade is eager to see the strike at Duluth ended, but it hits the bituminous trade much harder than it does the anthracite, for this port could rush enough coal forward late in the season to meet the shortage there if the strike does not last an improbable length of time.

Bituminous prices are much as usual. Slack has run up in price, showing that it is taking the place of mine run. Quotations: $4.55 for Allegheny Valley sizes, $4.80 for Pittsburgh and No. 8 lump, $4.65 for three-quarter, $4.20 for mine run, $4.10 for all slack, $4.60 for smokeless, $5.70 for Pennsylvania smithing, $6.75 for domestic coke, $5.75 for breeze coke, all per net ton, f.o.b. Buffalo.

Anthracite—The conditions do not change much. Consumers are asking for more than is to be had, but shippers and distributors think a good average amount has been put into cellars and are inclined to take an unconcerned view of the outlook. Lake shipments keep up better than might be expected. No very exact estimate can be made of the through rail-line trade, but it is said to have suffered considerably on account of the demands from the other branches of the trade.

CLEVELAND

Curtailed car supply has reduced receipts of bituminous coal in northern Ohio to the bare demands of consumers. With the strike of dock workmen at the head of the Great Lakes still on, the lake trade is virtually dead for the present. Operators here insist they have no fears of a strike of mine workers Nov. 1.

Bituminous—Efforts of the larger steam-coal consumers to "get ahead of the game" are proving fruitless, for southern and eastern Ohio operators are able to bring in just enough coal to meet current demands. This is the condition despite the fact lake shipments are nil just now. The mines are undermanned, due to the slow but steady departure of aliens for Europe, but even these short forces are not furnished with enough cars to keep them going more than 60 per cent. of the time.

Prices continue firm, but have not advanced. For this the operators take credit, saying they are keeping down prices in the hope they may help break the "vicious cycle" of rising commodity costs. On the whole, bituminous coal prices here are just about where they were when Government control ended, with $2.35 ruling for slack and mine run and $2.60 for prepared sizes. At the lowest point of the decline following the signing of the armistice, slack and mine-run dropped to $1.20 and prepared sizes to about $2, showing the recovery in the latter less than in the two former grades. Domestic bituminous coal prices,

however, are constantly being scaled upward by the retail dealers.

Uppermost this week in the Cleveland market is the convention of the United Mine Workers. All indications point to the expected demands—a 6-hour day and 5-day week.

Pocahontas and Anthracite—Supplies of both grades continue far under normal, and retail dealers are unable to make deliveries under two weeks. Prices that have not been advanced are firm and likely to be boosted soon. Forked Pocahontas has been marked up 50 cents, to $10, delivered.

Lake Trade—Most operators believe the lake season is about over. Efforts to man the docks at the head of the Great Lakes with strike breakers are not proving very successful, and shipments are about 50 per cent. of normal. In the early part of the season upper lake dock interests failed to move coal off the docks, while now they are unable to move it off the docks or unload vessels. Shipments now are about 350,000 tons under what they were at this time last season. Shipment of coal via railroad from the Indiana and Illinois fields will be the only way out for upper lake coal consumers, it is believed.

Prices of coal per net ton delivered in Cleveland are:

Anthracite:	
Egg	$11.75@11.90
Chestnut	12.00@12.20
Grate	11.75@11.90
Stove	11.90@12.10
Pocahontas:	
Forked	9.50@10.00
Lump	8.75@ 9.00
Mine-run	7.50
Domestic bituminous:	
West Virginia splint	8.00@8.25
No. 8 Pittsburgh	6.60@6.90
Massillon lump	7.70@7.95
Cannel lump	7.85
Coshocton lump	6.85
Steam coal:	
No. 6 slack	4.60@4.80
No. 8 slack	5.10@5.50
Youghiogheny slack	5.25@5.50
No. 8 ¼-in.	5.70@6.00
No. 6 mine-run	4.75@5.00
No. 8 mine-run	5.20@5.45

DETROIT

Demand for steam coal remains rather sluggish; anthracite supply is not attaining adequate volume.

Bituminous—In the steam-coal division of the bituminous trade orders are coming more slowly than they should, jobbers say, if the manufacturing and industrial plants of Detroit are to be assured of an adequate supply of coal for winter needs. It is expected the developments in the mine labor situation may exert an influence on some of the backward buyers, tending to bring about a broader market.

Despite the sluggish aspect of the steam coal trade in Detroit, jobbers are encountering an active demand from customers outside, and this business is absorbing stock, which the jobbers assert should be held in Detroit to build up winter reserves of the local consumers. An impression seems to have been created among some of the Detroit buyers that there is a plentiful supply of bituminous and that they will be able to get all the coal they may need at lower prices before winter sets in. The prospect of a strike of mine workers, in the opinion of the jobbers, is likely to provide the stimulus that will accelerate buying.

Meanwhile, the matter of car supply is steadily attaining a place of increased importance as a factor in supply.

Smokeless coal, owing to the demand from the East, is difficult to find in Detroit. Mine-run is held at $2.75@3 a net ton, f.o.b. mines. Hocking domestic lump ranges $3.25@3.50, Hocking egg holds around $3 and mine-run ranges from $2.25@2.40, with slack selling at $1.90@2. Four-inch West Virginia lump is quoted at $4, two-inch lump $3.75, mine run $3 and slack $2.25@2.50. Quotations on Jackson Hill are placed about $1 above those for Hocking.

Anthracite—Household consumers are awakening to the necessity of preparing for winter, and there is a fairly active demand for anthracite, which is revealing to many of the would-be buyers that the outlook is not altogether pleasing. Retailers say they are encountering difficulty in having their orders filled and that shipments are slow in arriving, while stocks in yards are so low as to arouse apprehension of a short supply.

COLUMBUS

The Ohio coal trade continues rather active in every department. Lump and screenings are the strongest sizes, while mine-run is only lagging slightly. Retail trade is especially active in view of heavier buying on the part of consumers. Prices continue strong.

The feature of the Ohio coal trade is the demand for both prepared lump and small sizes, which are selling rapidly in every locality. Screenings, which have been quite slow for some time, recently assumed considerable strength, with the result that buying is active in steam circles. Reserve stocks of small sizes are not large, and many of the consumers are hurrying to get under cover before the situation becomes tighter. With the miners meeting in convention in Cleveland, talking of a higher wage scale and shorter hours, large steam users are getting anxious as to supplies for the winter. Quite a few contracts for screenings have been closed recently, and there is quite a boom in that class of business. Mine-run is not quite so active as screenings, but this is not believed to be permanent and little of that grade is going begging. Railroads are using a larger tonnage, and this is helping the mine-run situation. On the whole the steam trade is more active than formerly, and prospects are for a continuation of the activity.

The domestic trade is active also with buyers in the market in larger numbers than formerly. Many of the contracts booked by retailers early in the season for delivery after Sept. 1 are now being looked after, and this is taking a large tonnage. New business is also coming in well and there is a general tendency among householders to buy now in view of the uncertainty of the future. Pocahontas is quite scarce and little is arriving in central Ohio. Splints are also becoming more scarce, and this is throwing the burden of demand on Hocking and Pomeroy grades. Practically no mines in the southern Ohio field are now idle because of lack of orders. Business is sufficient to keep all going, only limited by car supply and labor. Retail stocks are only fair and many are making strong efforts to increase stocks before the first cold snap. Retail prices are firm at the higher levels and the range is quite wide.

The lake trade is rather active, although limited car supply is restricting lake shipments to a certain extent. The demand from the Northwest is still good and the trade will undoubtedly run into late November. Reports show that some congestion at the docks is holding up a free movement.

CINCINNATI

Fuel supplies slow in coming in and dealers are worried over outlook.

Cincinnati coal men say that the coal situation insofar as it affects their business at this time is a serious one, and one that is growing more alarming as time goes on. They say it is almost impossible to get anthracite or smokeless coal, what little there is drifting into this market being of no consequence. Only one firm is advertising the fact that it has anthracite for sale at $10.50 a ton, but in limited quantities. Soft coal is also scarce. The demand in the past few weeks has grown steadily, and unless something is done real soon there is every likelihood that those who put off buying their coal are going to find themselves handicapped for lack of the fuel this coming winter.

The situation is due to the railroad facilities, the shortage in cars in the Kentucky, West Virginia and Ohio fields showing little improvement, if any, during the past week. Operators in the Ohio district especially are complaining about the car shortage and are fairly begging the Railroad Administration officials for cars in which to haul their product, so as to keep their mines going, there being every evidence that unless the men can be kept at work five days out of the week they are going to seek other employment, which would complicate the situation more than ever.

Retail coal prices were advanced officially at the Chamber of Commerce last Saturday. Smokeless lump and egg coal was quoted at $7.75@8.25 a ton, against $7.75@8 last month. Smokeless run-of-mine was put up 25 cents a ton, to $6.75@7.25 a ton. Coke was advanced 25 cents to 50 cents a ton at $10@10.25.

The advances in the prices served to stimulate the demand from all sources. Much coal is needed for the local market and every effort is being made by the operators and dealers to get it here.

LOUISVILLE

Prospects of better distribution of cars, with some relief from present shortage of cars. Prices firm with steam coal in strong demand at slightly higher prices.

Promised relief has been given the Kentucky operators in more equitable distribution of cars, officials of the Railroad Administration having promised to divert more cars from the South to the Kentucky and Tennessee fields. For some time past cars from the Kentucky and Tennessee fields into the South have been routed by direct route back to the car pool territory, with the result that the supply reaching the operations in the territory of the Southern Appalachian Association has been the smallest shown in any section of the country.

Kentucky operators are doing just slightly better than running two days a week at the present time, mines being oversold and refusing business in most cases. Retailers report a dull demand due to the weather, but are stocking some little coal, and expect an active demand about Oct. 1.

There is a good demand for gas coal, which is moving into various sections for utilities and byproducts plants. These buyers have become scared and are buying mine-run freely. There is still a good movement from mines to the Lakes and to the Northwest. There is also some railroad buying. Southern movement is slowing up fast, as the district is fairly well supplied. It is reported that there is now a very fair export demand for gas coal, with inquiries coming from numerous countries. The Harlan operators are exporting some coal through Savannah and Norfolk.

BIRMINGHAM

Market somewhat more active account poor car supply, which is holding production below requirements of the trade. Inquiry for low and medium grade steam coal better, due to inability of consumers to get full supply of best grade fuel. Domestic very active, but none to be had.

This district is at present unable to supply sufficient coal to take care of the demands of the trade, due to the inadequate and uncertain supply of equipment being furnished the mines, many operations being idle several days a week on account of no cars for loading. Consumers are being forced to buy some of the low and medium grades of steam coal recently, the allotment of cars at operations producing the better grades of fuel not being sufficient to allow an output commensurate with the demand for the higher quality of coal. Railroads as a whole have little surplus coal and some of them have already been in the market to supplement the tonnage being received on contracts. Quotations have made no change recently and range about as follows per net ton mines: Big Seam mine-run, $2.30@2.60; Pratt, $2.85@3; Black Creek and Cahaba, $3.45@3.85.

While there is only occasionally a car of domestic coal obtainable in the spot market, almost any price is being offered, premium of 50c. to over September schedule being paid.

Coke

CONNELLSVILLE

Slightly easier appearance in market, but prices not lower. Consumption sharply increased in past few weeks.

The coke market is a shade easier, though minimum prices are hardly quotable at any lower level. As for some time past there is a delicate balance, the least excess of demand over supplies making the market very strong while the accumulation of only a few cars on track gives the market an easy appearance.

There have been several cases in the past fortnight of furnace interests being compelled to buy prompt coke in the open market because shipments against contracts were not up to requirements. Investigation by the furnaces showed that the operators were doing their best and no suspicion is entertained that any operators are selling on the spot market coke that they should be delivering on contract.

Consumption of Connellsville coke is much greater than a few weeks ago, as a number of furnaces, normally tributary to the region, have gone into blast. Struthers blew in week before last, and Ella, Claire and Hannah last week. Hannah is a stack of the Republic Iron and Steel Co., whose byproduct plant at Youngstown supplies the Hazelton furnaces, while Atlantic and Hannah must use Connellsville coke. The company has a Connellsville operation but had to buy coke for Hannah because it

could have produced the additional coke at its own ovens only by curtailing coal shipments to the byproduct plant, which would then have had to buy coal. It was regarded better to buy coke than coal, this reflecting the tight condition in the coal market. Connellsville coke is bringing only the coal value plus the bare cost of coking.

Foundry coke continues in good demand, with offerings far from plentiful, and box-car shipments very hard to secure. We quote spot and prompt at $4.75 for furnace and at $6@6.50 for foundry, per net ton at ovens.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended Sept. 6 at 263,742 tons, an increase of 21,347 tons.

Buffalo—The coke trade has not materially changed. Furnaces are taking a good amount and are running at more than average speed, with prospect of getting all the iron ore down by lake that is needed. Since the resumption of shipments after the end of the strike an effort has been made to make up for lost time. Prices are strong at $7.60 for 72-hour Connellsville foundry, $7.25 for 48-hour furnace and $7 for off grades, per net ton, f.o.b. Buffalo.

Middle West

GENERAL REVIEW

Strong demand for prepared coal in Middle West. Operators are coöperating to the benefit both of themselves and the general public. Labor situation improved.

There is a strong demand for prepared coal in the Midwest territory. This demand is increasing in strength from day to day, and will probably lead to a stampede on the part of the buying public within a short time. Steam sizes appear to have suffered a slight relapse during the past week. Illinois screenings are selling today at from $1.75@2.20 per ton f.o.b. mines according to the quality of the coal, and the district in which it originates. It is confidently expected that the steam market will strengthen very soon, as the car supply is growing worse from day to day and the labor situation is far from satisfactory. It is also predicted that a great many large users of steam coal wil have to close their plants later in the season because they have neglected to store an adequate amount of coal, or lacking the knowledge of the real conditions in the coal industry have misjudged the situation and failed to cover their requirements by contract.

The question of prices on domestic coal deserves some mention in this review. As stated before, the demand for prepared sizes is great. In spite of this, operators and distributors have been maintaining their prices at very reasonable levels. For instance, Franklin County prepared coal is selling at from $3.15 to $3.25 per ton f.o.b. mines. High-grade Indiana coal is bringing the same prices, while the Springfield district and other less favored fields are having no difficulty in getting from $3 to $3.15 or perhaps more for their domestic sizes. The only offenders in the price question appear to be certain small eastern operators who have been shipping some of their coal into western Iowa and Nebraska. We understand from a reliable source that prepared coal has been selling on a basis of $5.50 mines in the territory just referred to.

The tendency on the part of the operators to coöperate rather than work at cross purposes was further shown this week by the combination of some mines in the Springfield, Ill., district. This combination is bound to work a benefit, both from the standpoint of the buying public and the coal industry itself. The Springfield district for a long time consisted of a number of small mines that were engaged in a career of self-destruction by their price-cutting methods. Since 1917, however, these mines have been brought together until now there are three or four large companies that practically control the field. This works as a benefit to the public as the coal buyers have a more reliable and satisfactory source of supply, and as a benefit to the coal industry as it has done away with a number of irresponsible companies that broke the market and fought for one another's business with price-cutting methods, at the first sign of a weak market.

The labor situation we believe is improved in southern and central Illinois. We understand that the I.W.W. or the Bolshevik element among United Mine Workers has met with little success. Several mines are reported still idle after the visits of the band of radicals who started out some time back on a march through the mining districts. It is thought that President Farrington, of the Illinois unions, has the situation in hand.

CHICAGO

Domestic coal in great demand. Steam inquiry has fallen off.

As usual, the market in Chicago is similar to the market in the Middle West, except that perhaps it is intensified to some degree. Domestic coals are in great demand, and even in greater demand than in the country, but steam coals have slumped to a larger extent. Upon looking over the situation, one is impressed with the very marked improvement over conditions in the market as short as a month ago. At that time good southern Illinois coal was selling at from $1.25@1.40 per ton, in some instances, while now it is impossible to get this coal at figures below $1.90, the favored price being $2.05 for coal that is anywhere near good. The reason for this marked improvement is, first, a number of manufacturers who have been holding off have now come into the market, and have come in strong; second, the car supply in practically all of the producing fields is very poor; and third, the labor situation is causing considerable worry.

The prices of coal in the Chicago market are as folows:

	F.o.b. Mines per Ton	Rate to Chicago
ILLINOIS		
Southern Illinois Franklin, Saline and Williamson Counties		
Prepared sizes	$2.45@$3.25	$1.55
Mine-run	2.30@ 2.75	1.55
Screenings	1.90@ 2.50	1.55
Central Illinois Springfield District		
Prepared sizes	2.25@ 3.00	1.31
Mine-run	2.00@ 2.50	1.31
Screenings	1.75@ 2.05	1.31
Northern Illinois Thin Vein District		
Prepared sizes	3.10@ 3.60	1.24
Mine-run	2.90@ 3.00	1.24
Screenings	2.05@ 2.85	1.24
INDIANA		
Clinton 4th Vein District		
Prepared sizes	2.40@ 3.25	1.27
Mine-run	2.35@ 2.60	1.27
Screenings	1.90@ 2.20	1.27
Brazil Block-Lower Vein	3.75@ 4.25	1.27
Knox County—5th Vein		
Prepared sizes	2.40@ 3.45	1.37
Mine-run	2.20@ 2.40	1.37
Screenings	1.70@ 1.95	1.37
EASTERN COAL		
New River and Pocahontas		
Prepared sizes	4.75@ 5.50	2.60
Mine-run	3.75@ 4.00	2.60
West Virginia Splint		
Prepared sizes	4.00@ 4.50	2.60
Mine-run	3.50@ 3.75	2.60
Hasard, Ky.		
Prepared sizes	4.25@ 4.50	2.45
Mine-run	3.00@ 3.50	2.45
Screenings	2.20@ 2.50	2.45
Harlan Field, Ky.		
Prepared sizes	4.25@ 4.50	2.45
Mine-run	2.65@ 3.50	2.45
Cannel	4.00@ 5.50	2.45 @ 2.60

MILWAUKEE

Coal market quiet, with prices steady. Some uneasiness felt in regard to the outlook for the coming winter.

The coal market is quiet, with prices steady. Small dealers find it hard to fill orders because of the scarcity of the popular domestic grades of anthracite—stove and nut. Shippers say the movement by rail to the interior would be better if cars were more plentiful. There is a steady flow of cargoes by lake, including both hard and soft coal. Milwaukee has escaped dock trouble thus far. Two cargoes which arrived recently came from Duluth-Superior. The coal was originally shipped from Toledo to Duluth, but owing to the strike at the latter port the vessels were ordered to Milwaukee.

Notwithstanding that a good supply of coal is in sight at the present time, some Milwaukee dealers are advancing pessimistic predictions and warning consumers to protect themselves against a possible famine next winter by ordering coal while it can be had. As one dealer puts it: "I am afraid this will be the worst winter since the strike of 1891. Not only is there a shortage of production of all grades, but the strike in the anthracite region promises further complications." Furthermore, he says, dealers have not been given an opportunity to stock up during the summer season, and that Illinois jobbers, who in the past have been insistent solicitors at this season of the year, have suddenly ceased to cultivate the field. It is generally admitted that if there is to be a serious turn in the situation here it will not develop until after the close of navigation.

Cargo receipts thus far this season aggregate 579,840 tons of anthracite, and 2,109,161 tons of soft coal, a gain of 165,644 tons of the former and a loss of 234,866 of the latter, compared with the record for 1918.

The municipal coal yard at Eau Claire, Wis., is doing business, but owing to difficulty in procuring supplies, only Franklin County, Illinois, coal is dealt in at present. This is being retailed at $8 per ton.

ST. LOUIS

Mines still on strike in Mt. Olive and Standard fields, with little coal on the open market. Trouble gradually bettering. Car supply unusually bad. Demand easy, excepting on country calls. Local business quiet.

The local situation is an extremely easy one, everything considered. The public is not clamoring to any great extent for coal but taking it as it comes in to the dealers. The supply of Carterville is far from sufficient, but is satisfactory in view of the unusual circumstances in the Illinois field. The industrial situation in and around St. Louis is below normal, and for that reason there is not the demand for steam coal that is usually heavy at this season in other years. In a general way the local situation is perhaps better than in any of the larger cities in the country.

In the Standard field the mines are still idle on many of the roads, while here and there a few of them have resumed, with a shortage of men. The marching miners camped at Marissa for a few days and sent a detachment on to Benton in Franklin County, where they were not received with any marked degree of hospitality. They are appealing to the miners in the Williamson and Franklin County field, but with no effect. On the main line of the Illinois Central, from Coulterville north, they have the mines pretty well shut down. On the Baltimore & Ohio, the Southern, the Louisville & Nashville, and Vandalia they are also idle, as a rule. In the Mt. Olive field they have resumed operations in most of the mines, but Livingston quit, and north of that place there has been some disturbance. From there they got into the northern field in the vicinity of Livingston, and the sheriff of Macoupin County met them and told them what the law was on any disturbances that might occur. That rather took the starch out of the leaders, but they were still reported as being encamped somewhere in that district.

There is an unusually good demand in the country for Standard and Mt. Olive coal, but there is so little of the Standard that it is going at premium when it will go out of St. Louis. The lump is selling at from $2.75@3 with mine-run at $2.25@2.40 and screenings $1.75@2, with 2-in. lump at about $2.50.

The Mt. Olive field, producing nearly all of its tonnage, is still sticking to its regulation price of about $2.40 on the St. Louis business for domestic sizes and $2.85@3 for outside business. The car supply is fairly good in the Mt. Olive field.

In the Standard district the Mobile & Ohio is the only road with any supply of cars at all. The Illinois Central is in bad shape. In the Carterville field of Williamson and Franklin Counties there are no labor disturbances, but the car supply is seriously affecting the tonnage. The roads have let up somewhat on their demands for coal, especially on the Iron Mountain, and more commercial coal is moving out; but the car supply is so poor on the Iron Mountain and Illinois Central that the tonnage is about one-fourth of what it should be. The car supply on the Burlington is best, with the Chicago & Eastern Illinois following.

The demand for screenings is a little light, but the other sizes are sold up for as far ahead as three months in some cases. Similar conditions exist in the Du Quoin field. The railroad tonnage out of all these fields is above the average for this season.

There is no anthracite coming in and no smokeless, and nothing from Arkansas.